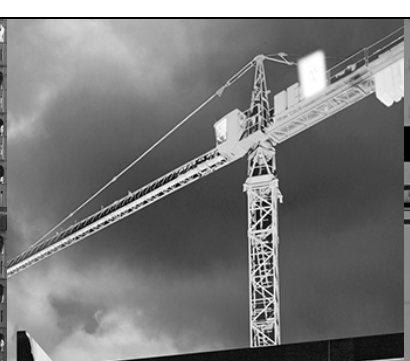
SEW EURODRIVE

Operating Instructions

MOVITRAC® LTE-B

Edition 09/2010

16923626 / EN



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1 Important Notes

1.1 Structure of the safety notes

1.1.1 Meaning of the signal words

The following table shows the grading and meaning of the signal words for safety notes, notes on potential risks of damage to property, and other notes.

Signal Word	Meaning	Consequences if disregarded
⚠ **DANGER**	Imminent danger	Severe or fatal injuries
⚠ **WARNING**	Possible dangerous situation	Severe or fatal injuries
⚠ **CAUTION**	Possible dangerous situation	Minor injuries
NOTICE	Possible damage to property	Damage to the drive system or its environment
INFORMATION	Useful information or tip: Simplifies the handling of the drive system.	

1.1.2 Structure of the section safety notes

The section safety notes do not apply to a specific action, but to several actions pertaining to one subject. The pictograms used indicate either a general or a specific hazard.

This is the formal structure of a section safety note:

⚠ SIGNAL WORD

Nature and source of hazard.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the hazard.

This is an example for a section safety note:

⚠ WARNING

Falling of suspended loads.

Severe or fatal injuries.

- Do not stand under the suspended load.
- Secure the danger zone.

1.1.3 Structure of the embedded safety notes

The embedded safety notes are directly integrated in the instructions just before the description of the dangerous action.

This is the formal structure of an embedded safety note:

- ⚠SIGNAL WORD Nature and source of hazard.

  Possible consequence(s) if disregarded.

  – Measure(s) to prevent the hazard.

This is an example for an embedded safety note:

- ⚠**DANGER** Risk of crushing if the drive restarts unintentionally.

  Severe or fatal injuries.

  – De-energize the drive.
  – Secure the drive against unintended restart.

Unless the information in the operating instructions is adhered to, it will be impossible to ensure:

- Trouble-free operation
- Fulfillment of any rights to claim under guarantee

Consequently, read the operating instructions before you start working with the unit!

The operating instructions contain important information about servicing. Therefore, keep the operating instructions close to the unit.

1.2 Application environment

The following applications are forbidden unless measures are expressly taken to make them possible:

- Use in explosion-proof areas.
- Use in environments with harmful substances:
  - Oils
  - Acids
  - Gases
  - Vapors
  - Dust
  - Radiated interference
  - Other harmful environments
- Use subject to mechanical vibration and shock loads in excess of the requirements in EN 50178.
- If the inverter performs safety functions which have to guarantee the protection of machinery and people.

1.3 Waste disposal

Please follow the current instructions: dispose in accordance with the regulations in force:

- Electronics scrap (printed-circuit boards)
- Plastic (housing)
- Sheet metal
- Copper

2 Safety Notes

MOVITRAC® LTE-B drive inverters may not perform safety functions without higher-level safety systems.

Do not use MOVITRAC® LTE-B drive inverters for any safety functions in conjunction with hoist applications.

2.1 Installation and startup

- **Never install or start up damaged products.** Please submit a complaint to the transport company immediately in the event of damage.
- **Installation, startup and service work** on the unit only by **trained personnel**. The personnel must be trained in the relevant aspects of accident prevention and must comply with the regulations in force (e.g. EN 60204, VBG 4, DIN-VDE 0100/0113/0160).
- Follow the **specific instructions** during **installation** and **startup** of the motor and the brake!
- Make sure that **preventive measures** and **protection devices** correspond to the **applicable regulations** (e.g. EN 60204 or EN 50178).

  Grounding the unit is a necessary protective measure.

  Overcurrent protection devices are a necessary protective measure.
- **The unit meets all requirements for reliable isolation** of power and electronics connections in accordance with UL508. **All connected circuits** must also **satisfy the requirements for reliable isolation** in order to guarantee reliable isolation.
- Take **suitable measures** to ensure that the connected **motor does not start up automatically when the** inverter **is switched on**. To do this, you can connect binary inputs DI01 through DI03 to GND.
- **Integral solid state short circuit protection does not provide branch circuit protection.** Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes.

2.2 Operation and servicing

⚠ WARNING

Danger of electrical shock. High voltages are present in the terminals and within the drive for up to 10 minutes after the electrical supply has been disconnected.

Severe or fatal injuries.

- Disconnect and isolate the MOVITRAC® LTE-B from the electrical supply at least 10 minutes before commencing any work on it.

- Dangerous voltages are present in the output terminals and the cables and motor terminals connected to them when the unit is switched on. Dangerous voltages may also be present when the unit is inhibited and the motor at a standstill.
- The unit is **not** necessarily **deenergized** when the **LEDs and the 7-segment display are off**.
- **Safety functions inside the unit** or a **mechanical blockage** may cause the **motor to stop**. The **removal of the source of the malfunction** or a **reset** can result in an **automatic restart of the drive**. If, for safety reasons, this is **not permissible** for the driven machine, **disconnect the unit from the supply system** before correcting the fault.

3 General specifications

3.1 Input voltage ranges

Depending on model and power rating the drives are designed for direct connection to the following supplies:

MOVITRAC® LTE-B sizes 1, 2 (115 V input):

115 V ± 10 %, 1-phase, 50 – 60 Hz ± 5 %

MOVITRAC® LTE-B sizes 1, 2 and 3s (200 – 240 V):

200 V – 240 V ± 10 %, 1-phase* / 3-phase, 50 – 60 Hz ± 5 %

MOVITRAC® LTE-B sizes 1, 2 and 3s (380 – 480 V):

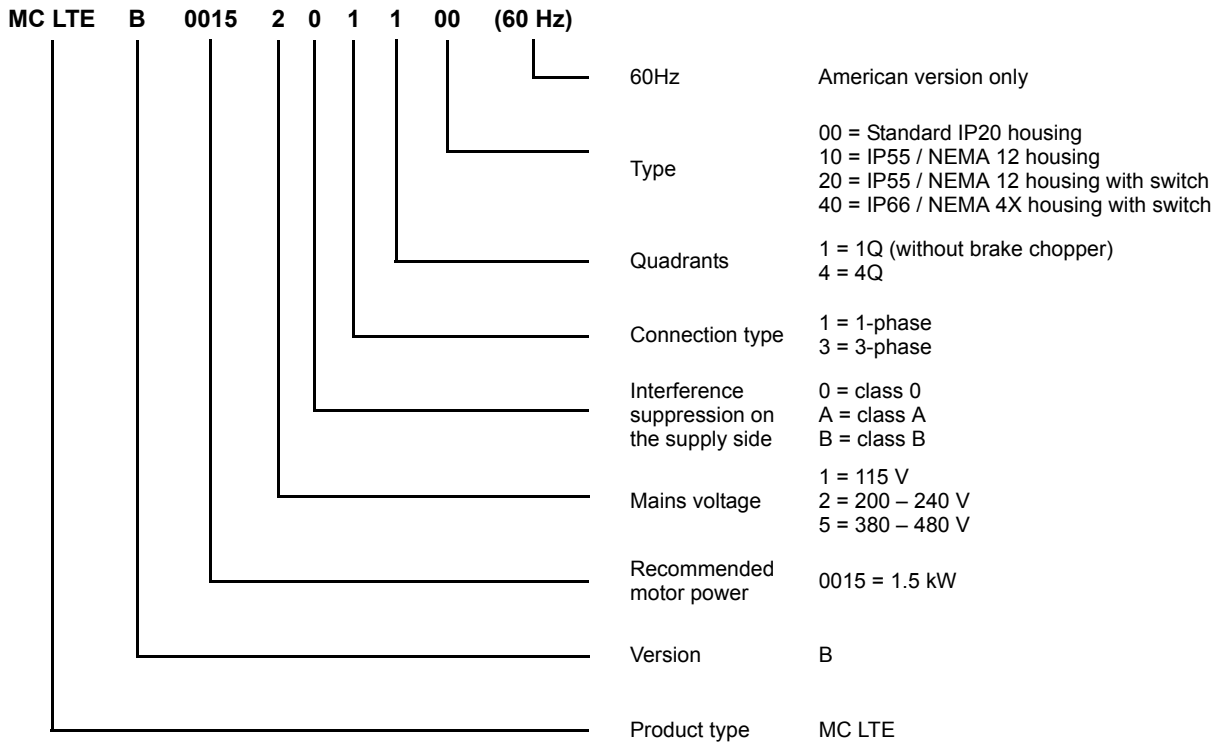
380 V – 480 V ± 10 %, 3-phase, 50 – 60 Hz ± 5 %

- **INFORMATION**

  *It is also possible to connect 1-phase MOVITRAC® LTE-B units to 2-phases of a 200 – 240 V, 3-phase mains.

Products used with a 3-phase supply are designed for a maximum supply imbalance of 3 % between phases. For input supplies which have a supply imbalance greater than 3 % (typically the Indian subcontinent and parts of the Asia Pacific including China) SEW-EURODRIVE recommends that input chokes are used.

3.2 Product designation


MC LTE B 0015 2 0 1 1 00 (60 Hz)
60Hz
American version only
Type
00 = Standard IP20 housing
10 = IP55 / NEMA 12 housing
20 = IP55 / NEMA 12 housing with switch
40 = IP66 / NEMA 4X housing with switch
Quadrants
1 = 1Q (without brake chopper)
4 = 4Q
Connection type
1 = 1-phase
3 = 3-phase
Interference suppression on the supply side
0 = class 0
A = class A
B = class B
Mains voltage
1 = 115 V
2 = 200 – 240 V
5 = 380 – 480 V
Recommended motor power
0015 = 1.5 kW
Version
B
Product type
MC LTE

3.3 Overload capability

All MOVITRAC® LTE-B units have a possible overload of:

- 150 % for 60 seconds
- 175 % for 2 seconds

The overload is reduced to 150 % for 7.5 seconds if the output frequency is below 10 Hz.

For motor overload adjustment see parameter *P-08* in chapter "Standard parameters" (page 39).

3.4 Protection features

- Output short-circuit, phase-to-phase, phase-to-ground
- Output over-current
- Overload protection
  - Drive delivers 150 % of rated motor current for 60 seconds.
- Over-voltage trip
  - Set at 123 % of drive maximum rated supply voltage.
- Under-voltage trip
- Over temperature trip
- Under temperature trip
  - Drive will trip if enabled below –10 °C
- Supply phase loss
  - A running drive will trip if one phase of a 3-phase supply is lost for more than 15 seconds.

4 Mechanical Installation

- Inspect the MOVITRAC® LTE-B carefully prior to installation to ensure it is undamaged.
- Store the MOVITRAC® LTE-B in its box until required. Storage should be clean and dry and within the ambient temperature range –40 °C to 60 °C.
- Install the MOVITRAC® LTE-B on a flat, vertical, flame-resistant, vibration-free surface, within a suitable switch cabinet. This should be according to EN 60529 if specific Ingress Protection (IP) ratings are required.
- Do not place flammable material close to the drive.
- Prevent the entry of conductive or flammable foreign bodies.
- The maximum ambient operating temperature is 50 °C for IP20 and 40 °C for IP55 / IP66 drives. The minimum ambient operating temperature is –10 °C.

  Please observe the specific ratings employed in chapter "Environmental" (page 48).
- Relative humidity must be less than 95 % (non-condensing).
- MOVITRAC® LTE-B units can be installed side-by-side. This gives adequate ventilation space between them. If the MOVITRAC® LTE-B is to be installed above another drive or any other heat-producing device, the minimum vertical spacing is 150 mm. The switch cabinet should either be force-ventilated or large enough to allow natural cooling (see chapter "IP20 housing: mounting and dimensions of switch cabinet" on page 16).
- A DIN rail mounting is supported in size 1 and 2 (IP20) drives only.

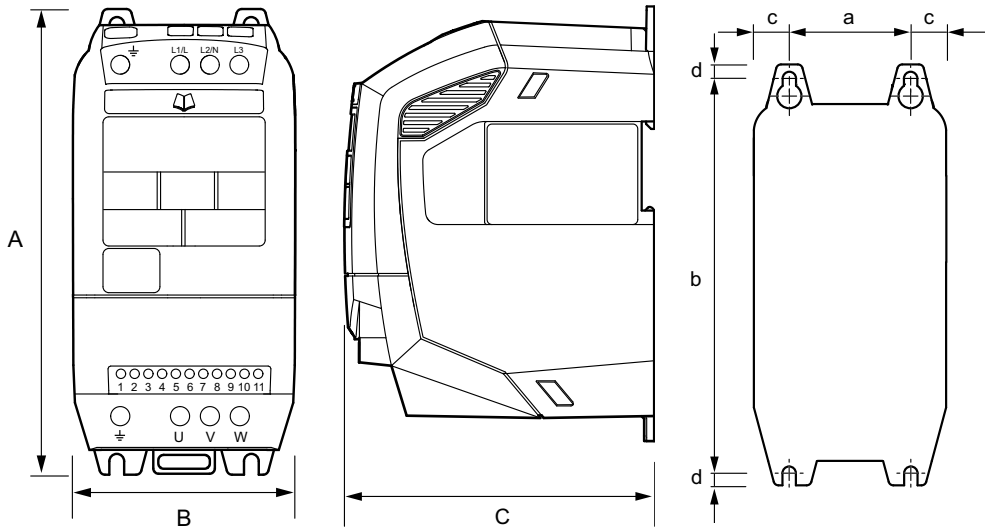
4.1 Dimensions

MOVITRAC® LTE-B is available in 3 housing versions:

- Standard IP20 housing for use in switch cabinets
- IP55 / NEMA 12 K
- IP66 / NEMA 4X

The IP55 / NEMA 12 K and IP66 / NEMA 4X housing is protected against moisture and dust. Therefore, the drives can be operated indoors under harsh conditions. Electronically, the drives are identical and the only differences are the dimensions of the housing and the weight.

4.1.1 Dimensions of the IP20 housing



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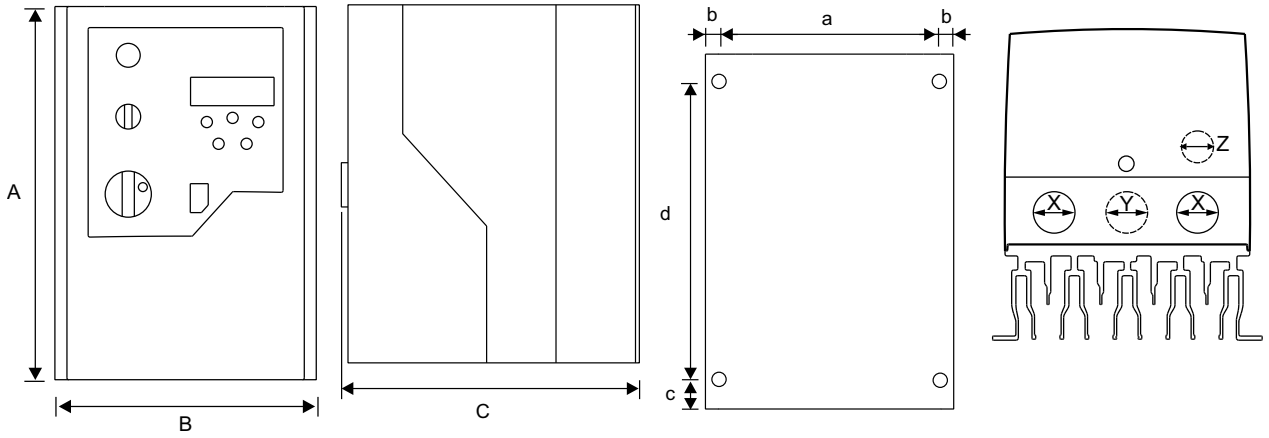
Dimension		Size 1	Size 2	Size 3
A (Height)	[mm]	174	220	261
	[in]	6.85	8.66	10.28
B (Width)	[mm]	79	104	126
	[in]	3.11	4.10	4.96
C (Depth)	[mm]	122.6	150	178
	[in]	4.83	5.90	7.01
Weight	[kg]	1.1	2.0	4.5
	[lb]	2.43	4.40	10.0
a	[mm]	50.0	63.0	80.0
	[in]	1.97	2.48	3.15
b	[mm]	162	209.0	247
	[in]	6.38	8.23	9.72
c	[mm]	16	23	25.5
	[in]	0.63	0.91	1.02
d	[mm]	5.0	5.25	7.25
	[in]	0.2	0.21	0.29
Power terminal torque settings	[Nm]	1.0	1.0	1.0
	[lb.in]	8.85	8.85	8.85
Recommended screw size		4 × M4	4 × M4	4 × M4

4.1.2 Dimensions of the IP55 / NEMA 12 housing (LTE xxx –10 and –20)



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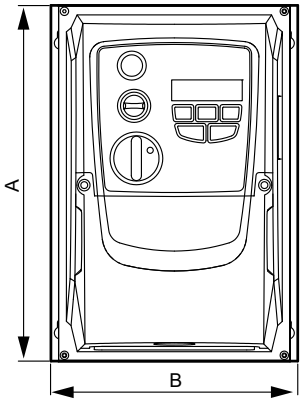
Dimension		Size 1	Size 2	Size 3
Height (A)	[mm]	200	310	310
	[in]	7.9	12.2	12.2
Width (B)	[mm]	140	165	211
	[in]	5.5	6.5	8.31
Depth (C)	[mm]	165	176	240
	[in]	6.5	6.9	9.45
Weight	[kg]	2.3	4.5	7.4
	[lb]	5.1	9.9	12.4
a	[mm]	128	153	196
	[in]	5	6	7.72
b	[mm]	6	6	7
	[in]	0.23	0.23	0.28
c	[mm]	25	25	25
	[in]	0.98	0.98	0.98
d	[mm]	142	252	251
	[in]	5.6	9.9	9.88
Power terminal torque settings	[Nm]	1	1	1
	[lb.in]	8.85	8.85	8.85
Control terminal torque settings	[Nm]	0.5	0.5	0.5
	[lb.in]	4.43	4.43	4.43
Recommended screw size		2 × M4	4 × M4	4 × M4

4.1.3 Dimensions of the IP66 / NEMA 4X housing (LTE xxx –40)



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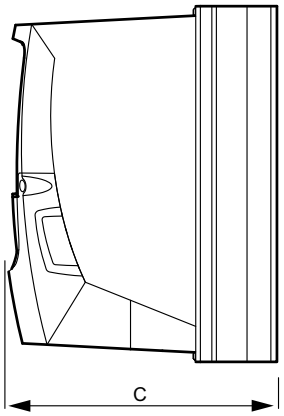

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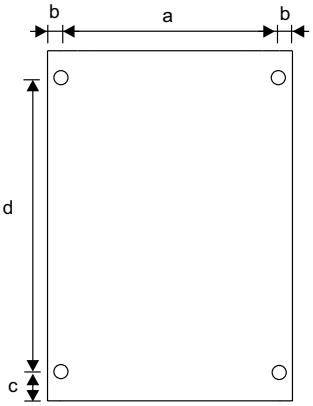

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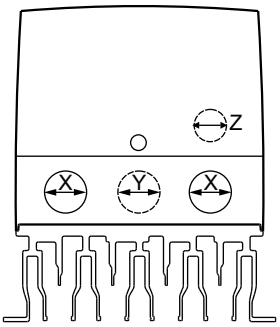

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Dimension		Size 1	Size 2	Size 3
Height (A)	[mm]	232	257	310
	[in]	9.13	10.12	12.20
Width (B)	[mm]	161	188	210.5
	[in]	6.34	7.4	8.29
Depth (C)	[mm]	179	186.5	228.7
	[in]	7.05	7.34	9
Weight	[kg]	2.8	4.6	7.4
	[lb]	6.2	10.1	16.3
a	[mm]	148.5	176	197.5
	[in]	5.85	6.93	7.78
b	[mm]	6.25	6	6.5
	[in]	0.25	0.24	0.26
c	[mm]	25	28.5	33.4
	[in]	0.98	1.12	1.31
d	[mm]	189	200	251.5
	[in]	7.44	7.87	9.9
Power terminal torque settings	[Nm]	1	1	1
	[lb.in]	8.85	8.85	8.85
Control terminal torque settings	[Nm]	0.5	0.5	0.5
	[lb.in]	4.43	4.43	4.43
Recommended screw size		4 × M4	4 × M4	4 × M4

Cable glands

A suitable cable gland system must be used to maintain the appropriate IP / NEMA rating. Cable entry holes must be drilled for this system. The recommended sizes are detailed in the table below.

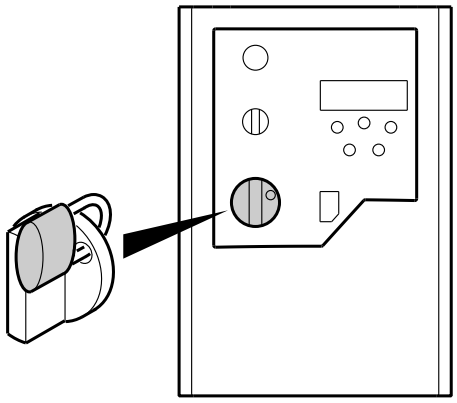
Dimension		Size 1	Size 2	Size 3
X	[mm]	22.3	28.2	28.2
	[in]	0.88	1.11	1.11
	PG	PG13.5 / M20	PG16 / M22	PG16 / M22
Y[1)]	[mm]	22	22	22
	[in]	0.87	0.87	0.87
	PG	PG13.5 / M20	PG13.5 / M20	PG13.5 / M20
Z[1)]	[mm]	17	17	–
	[in]	0.67	0.67	–
	PG	PG9 / M16	PG9 / M16	–

1) Glands Y and Z are flip out glands.

Lock off for IP55 / IP66 with switching option

On the switched drive the main power isolator switch can be locked in the "off" position using a 20 mm standard shackle padlock (not supplied).

Depress the centre of the switch to open the hole to insert the padlock.



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4.2 IP20 housing: mounting and dimensions of switch cabinet

For applications that require a higher IP rating than the IP20 offered by the standard housing, the drive must be mounted in a switch cabinet. The following guidelines should be observed for these applications:

- The switch cabinet should be made from a thermally conductive material, unless forced ventilation is used.
- When a vented switch cabinet is used, there should be venting above and below the drive to ensure good air circulation. Air should be drawn in below the drive and expelled above the drive.
- If the external environment contains contamination particles (e.g. dust), a suitable particle filter should be fitted to the vents and forced ventilation implemented. The filter must be serviced and cleaned as and when necessary.
- Environments with a high moisture, salt or chemical content should use a suitably sealed (non-vented) switch cabinet.

4.2.1 Dimensions of non-vented metal switch cabinet

Drive power rating		Sealed switch cabinet							
		A		B		C		D	
		[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]
Size 1	0.37 kW, 0.75 kW 115 V 0.37 kW, 0.75 kW 230 V	300	11.81	250	9.84	200	7.87	50	1.97
Size 1	1.5 kW 230 V 0.75 kW, 1.5 kW 400 V	400	15.75	300	11.81	250	9.84	75	2.95
Size 2	1.1 kW 115 V 1.5 kW 230 V 1.5 kW, 2.2 kW 400 V	400	15.75	300	11.81	300	11.81	60	2.36
Size 2	2.2 kW 230 V 4.0 kW 400 V	600	23.62	450	17.72	300	11.81	100	3.94

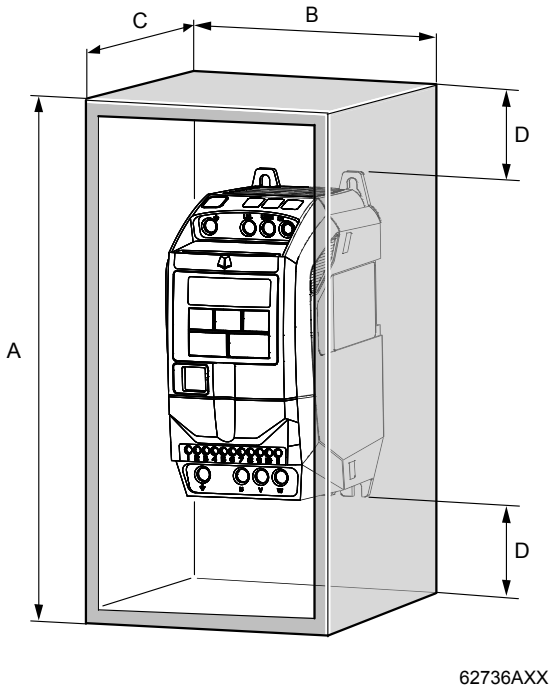


Figure 1: Switch cabinet

4.2.2 Dimensions of vented switch cabinet

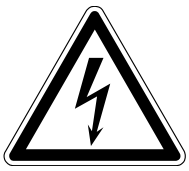
Drive power rating		Vented switch cabinet							
		A		B		C		D	
		[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]
Size 1	All ratings	400	15.75	300	11.81	150	5.91	75	2.95
Size 2	All ratings	600	23.62	400	15.75	250	9.84	100	3.94
Size 3	All ratings	800	31.5	600	23.62	300	11.81	150	5.91

4.2.3 Dimensions of force vented switch cabinet

Drive power rating		Force vented switch cabinet (with fan)								
		A		B		C		D		
		[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	Air Flow
Size 1	All ratings	300	11.81	200	7.87	150	5.91	75	2.95	> 15 m^3/h
Size 2	All ratings	400	15.75	300	11.81	250	9.84	100	3.94	> 45 m^3/h
Size 3	All ratings	600	23.62	400	15.75	250	9.84	150	5.91	> 80 m^3/h

5 Electrical Installation

It is essential to comply with the safety instructions in chapter 2 during installation.



⚠ WARNING

Danger of electrical shock. High voltages are present in the terminals and within the drive for up to 10 minutes after the electrical supply has been disconnected.

Severe or fatal injuries.

- Disconnect and isolate the MOVITRAC® LTE-B from the electrical supply at least 10 minutes before commencing any work on it.

- MOVITRAC® LTE-B units should only be installed by qualified electricians and in accordance with local and national regulations and codes of practice.
- The MOVITRAC® LTE-B has an Ingress Protection rating of IP20. For higher IP ratings, use a suitable enclosure or the IP55 / NEMA 12 or IP66 / NEMA 4X version.
- Where the electrical supply to the drive is through a plug and socket connector, do not disconnect until 10 minutes have elapsed after turning off the supply.
- Ensure correct earthing connections. See diagram in chapter "Drive and motor connection" (page 22).
- The earth cable must be sufficient to carry the maximum supply fault current which normally will be limited by the fuses or motor circuit breaker.

⚠ WARNING

Risk of fatal injury if the hoist falls.

Severe or fatal injuries.

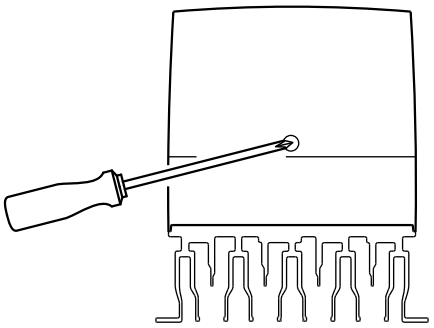
- MOVITRAC® LTE-B is not designed for use as a safety device in hoist applications. Use monitoring systems or mechanical protection devices to ensure safety.

5.1 Prior to installation

- Ensure that the supply voltage, frequency and number of phases (single or 3-phase) correspond to the rating of the MOVITRAC® LTE-B as delivered.
- An isolator or similar should be installed between the power supply and the drive.
- Never connect the mains power supply to the MOVITRAC® LTE-B output terminals U, V or W.
- The cables are only protected when slow blow HRC fuses or a motor circuit breaker (MCB) are used. See chapter "Permitted voltage supply systems" (page 20) for further information.
- Do not install any type of automatic switchgear between the drive and the motor. Wherever control cabling is close to power cabling, maintain a minimum separation of 100 mm and arrange crossings at 90 °.
- Ensure that screening or armoring of power cables is effected in accordance with the connections diagram in chapter "Drive and motor connection" (page 22).
- Ensure that all terminals are tightened to the appropriate torque.

5.1.1 Opening the front cover

IP55 size 1 & 2 Insert a screwdriver into the opening as illustrated below to release the front cover.



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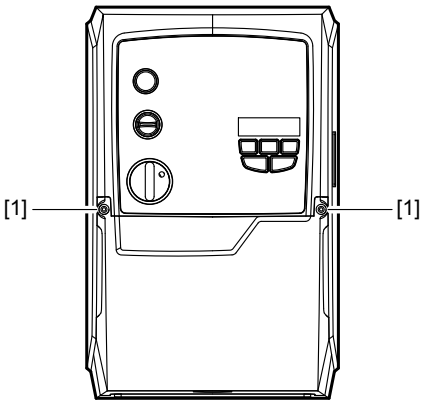
IP55 size 3 & IP66 all sizes Remove the 2 screws on the front of the unit to open the front cover.



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[1] Front cover screws

5.1.2 Helpcard

In the IP20 housing the helpcard is located in a separate slot above the display. In the IP55 / IP66 housing the helpcard is attached to the inside of the front cover.

5.2 Installation

Connect the drive according to the following diagrams. Ensure that the motor terminal box connections are correct. There are 2 standards: Star and Delta. It is essential to ensure that the motor is connected in accordance with the voltage at which it will be operated. For more information, refer to the diagram in chapter "Motor terminal box connections" (page 21).

It is recommended that the power cabling should be 4-core PVC-insulated screened cable, laid in accordance with local industrial regulations and codes of practice. Conductor end sleeves are required to connect the power cables to the drive.

The ground terminal of each MOVITRAC® LTE-B should be individually connected **directly** to the site earth (ground) busbar (through the filter if installed) as shown. MOVITRAC® LTE-B ground connections should not loop from one drive to another. They should also not loop to or from any other equipment. Ground loop impedance must conform to local industrial safety regulations. To meet UL regulations, UL approved ring crimp terminals should be used for all earth wiring connections.

5.2.1 Permitted voltage supply systems

- **Voltage supply systems with grounded star point**

  MOVITRAC® LTE-B is intended for operation on TN and TT systems with directly grounded star point
- **Voltage supply systems with non-grounded star point**

  Operation on mains systems with a non-grounded star point (for example IT power systems) is also permitted. SEW-EURODRIVE recommends using an earth-leakage monitor for this according to the PCM (Pulse Code Measuring) principle. Using such devices prevents the earth-leakage monitor from mis-tripping due to the ground incapacitance of the inverter.
- **External conductor grounded voltage supply systems**

  Operate the inverters on supply systems with a maximum phase-to-earth voltage of AC 300 V only.

5.2.2 Mains contactors and input fuses

Only use input contactors of utilization category AC-3 (EN 60947-4-1).

Ensure a minimum time of 120 seconds between 2 mains activations.

Input fuses

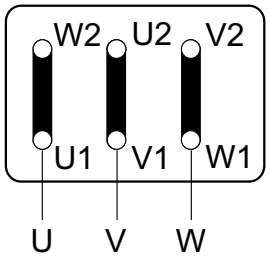
Fusing types:

- Line protection types in operation classes gL. gG:
  - Rated fusing voltage ≥ rated mains voltage
  - Rated fusing current must be designed for 100 % of the rated inverter current depending on the inverter utilization.
- Line protection switch with characteristics B, C:
  - Circuit breaker rated voltage ≥ rated mains voltage
  - Rated line protection switch currents must be 10 % above the rated inverter current.

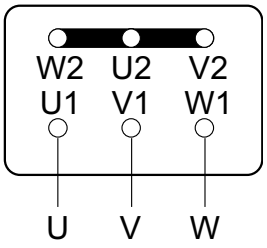
5.2.3 Motor terminal box connections

Motors are connected in either Star, Delta, Double Star or Star Nema motors. The motor rating plate will indicate the voltage rating for the method of connection, which must match the operating voltage of the MOVITRAC® LTE-B unit.

R13

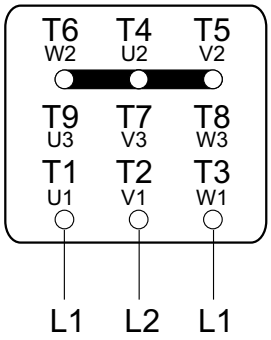


Low voltage Δ



High voltage 人

R76



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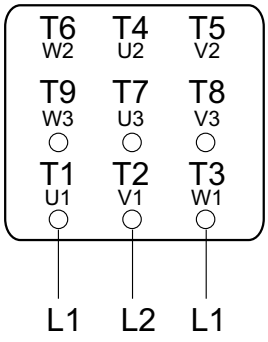
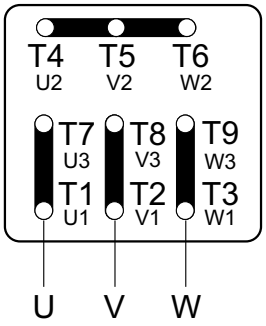
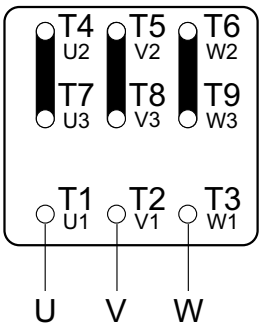


High voltage 人

DT / DV



Low voltage 人人



High voltage 人

5.2.4 Drive and motor connection

- ⚠ **WARNING** Risk of electrical shock. Risk of exposure to high voltage may occur if the unit is wired incorrectly.

  Severe or fatal injuries.

  – It is essential to observe the connection sequence illustrated below.

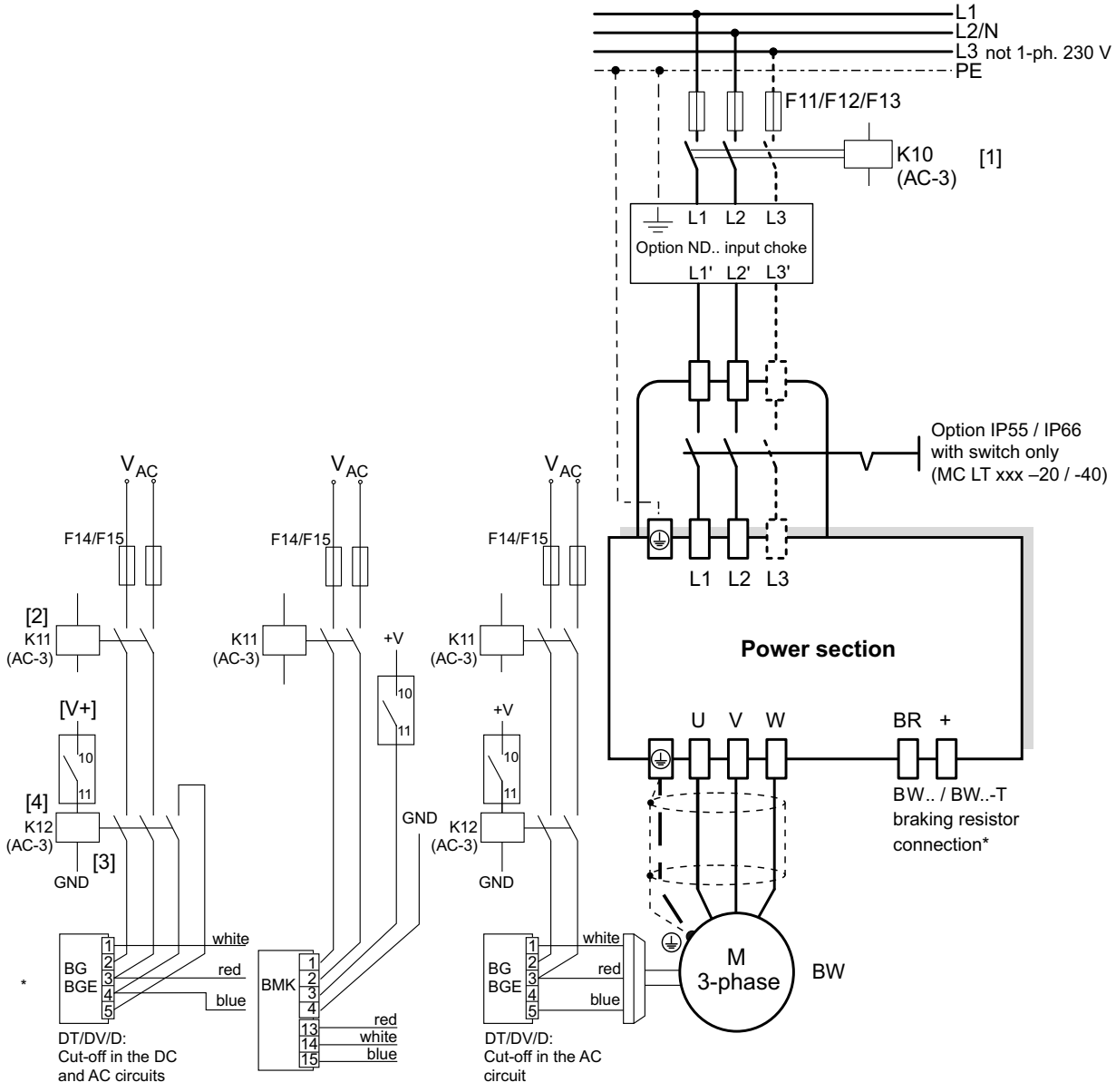


Figure 2: Wiring diagram for power section

[1] Mains supply contactor to drive

[2] Mains supply to brake rectifier, switched simultaneously by K10

[3] Control contactor / relay, energized via the internal relay contact [4] in the drive and supplies the brake rectifier

[4] Potential free relay contact inside the drive

[V+] External power supply for energizing the control contactor / relay

* Size 2 and 3 only

- **INFORMATION**
  - Connect the brake rectifier using a separate supply system lead.
  - **Supply via the motor voltage is not permitted!**

Always switch off the brake on the DC and AC sides with:

- All hoist applications
- Drives that require a rapid brake response time

5.2.5 Motor thermal protection (TF / TH)

Motors with an internal over-temperature sensor (TF, TH or similar) can be connected directly to the MOVITRAC® LTE-B. A trip will then be displayed on the drive.

The sensor is connected to terminal 1 (+24 V) and digital input 3. Parameter *P-15* must be set to external trip input to receive over-temperature trips. The trip level should be set to 2.5 k Ω.

5.2.6 Multi motor / group drive

The total of the motor currents must not exceed the rated current of the drive (see chapter "Technical Data" on page 48).

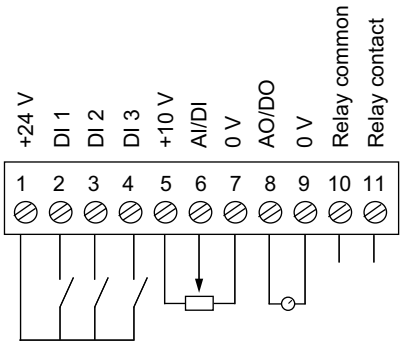
The motor group is limited to 5 drives and the motors in a group must not be more than 3 sizes apart.

The maximum cable length for the group is limited to the values for the individual drives (see chapter "Technical Data" on page 48).

For groups with more than 3 drives SEW-EURODRIVE recommends using an output choke.

5.3 Signal terminals overview

IP20 and IP55



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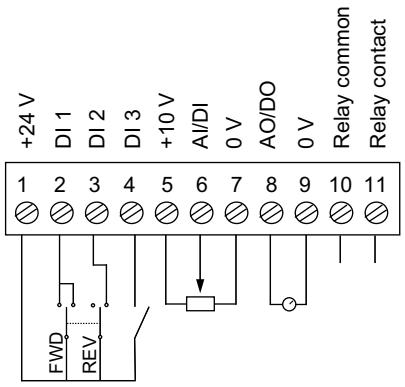
IP55 and IP66 with switch option



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The signal terminal block has the following signal connections:

Terminal no.	Signal	Connection	Description
1	+24 V ref out	+24 V ref out	Ref. to activate DI1 – DI3 (100 mA max.)
2	DI 1	Digital input 1	Positive logic "Logic 1" inout voltage range: DC 8 – 30 V "Logic 0" inout voltage range: DC 0 – 2 V Compatible with PLC requirement when 0 V is connected to terminal 7 or 9.
3	DI 2	Digital input 2	
4	DI 3	Digital input 3 / thermistor contact	
5	+10 V	+10 V ref out	10 V ref for analog input (pot supply +, 10 mA max., 1 K Ω min.)
6	AI / DI	Analog input (12 bit) Digital input 4	0 – 10 V, 0 – 20 mA, 4 – 20 mA "Logic 1" input voltage range: DC 8 – 30 V
7	0 V	0 V common	0 V ref (pot supply –)
8	AO / DO	Analog output (10 bit) Digital output	0 – 10 V, 20 mA analog 24 V, 20 mA digital
9	0 V	0 V common	0 V ref
10	Relay contact	Relay contact	N.O. relay contact (AC 250 V / DC 30 V @ 5 A)
11	Relay common	Relay common	

All digital inputs activated by input voltage in range +8 – 30 V, i.e. +24 V compatible.

- **NOTICE** Possible damage to property.

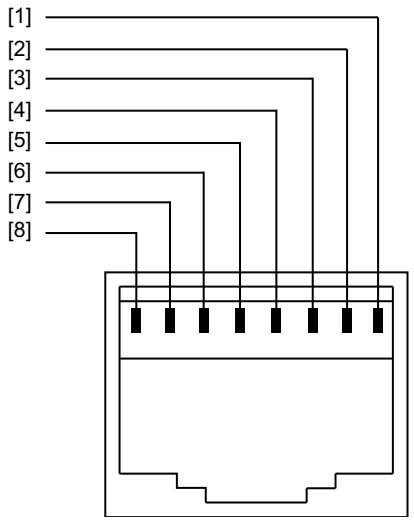
  Voltages greater than 30 V applied to the control terminals may result in damage to the controller.

  – Only apply voltages up to 30 V to the control terminals.

- **INFORMATION**

  Terminals 7 and 9 can be used for GND reference if MOVITRAC® LTE-B is controlled via SPS / PLC.

5.4 RJ45 Communication Socket



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[1] No connection
[2] No connection
[3] +24 V
[4] Internal bus[1)]
[5] Internal bus[1)]
[6] 0 V
[7] SBus+[2)]
[8] SBus–[2)]

1) The bit format is fixed as: 1 start bit, 8 data bits, 1 stop bit, no parity
2) *P-12* must be set to 3 or 4 for SBus communication

5.5 UL-compliant installation

Note the following for UL-compliant installation:

- The drives can be operated within the following ambient temperatures:
  - –10 °C to 50 °C for IP20
  - –10 °C to 40 °C for IP55 / NEMA 12
  - –10 °C to 40 °C for IP66 / NEMA 4X
- Only use copper connection cables which can withstand ambient temperatures of up to 75 °C.
- Permitted tightening torques for MOVITRAC® LTE-B power terminals are:
  - Sizes 1, 2 & 3s = 1 Nm / 8.9 lb.in

MOVITRAC® LTE-B drive inverters are suitable for operation in voltage power systems with an earthed star point (TN and TT systems), which can supply a maximum supply current and a maximum supply voltage in accordance with the following tables. The fuses listed in the following tables are the maximum permitted fuses for each inverter. Only use melting fuses.

Only use tested units with a limited output voltage (V_{max} = DC 30 V) and limited output current ($I \leq 8$ A) as an external DC 24 V source.

UL certification does not apply to operation in voltage supply systems with a non-earthed star point (IT systems).

5.5.1 200 – 240 V Units

MOVITRAC® LTE...	Short circuit rating	Max. supply voltage	Fuses
0004	AC 5000 A	AC 240 V	AC 6 A / 250 V
0008	AC 5000 A	AC 240 V	AC 10A / 250 V
0015	AC 5000 A	AC 240 V	AC 20A / 250 V
0022, 0040	AC 5000 A	AC 240 V	AC 32 A / 250 V

5.5.2 380 – 480 V Units

MOVITRAC® LTE...	Short circuit rating	Max. supply voltage	Fuses
0008, 0015	AC 5000 A	AC 480 V	AC 15 A / 600 V
0022, 0040	AC 5000 A	AC 480 V	AC 20 A / 600 V
0055, 0075	AC 5000 A	AC 480 V	AC 60 A / 600 V
0110	AC 5000 A	AC 480 V	AC 110 A / 600 V

5.6 Electromagnetic compatibility

The MOVITRAC® LTE-B range of frequency inverters is designed for use in machines and drive systems. They comply with the EMC product standard EN 61800-3 for variable speed drives. For EMC compliant installation of the drive system, follow the guidelines set out in council directive 2004/108/EC (EMC).

5.6.1 EMC immunity

The MOVITRAC® LTE-B range meets the immunity levels defined in EN 61800-3 for both industrial and domestic (light industrial) environments.

5.6.2 EMC emissions

The MOVITRAC® LTE-B EMC emission levels comply with the limit classifications defined in EN 61800-3 and EN 55014, allowing it to be used in both industrial and domestic (light industrial) applications.

To obtain the best EMC performance the drives should be installed in accordance with the wiring guidlines in chapter "Installation" (page 20), thereby ensuring good earth connections for the drive system. Screened motor cable must be used to achieve compliance with the radiated emissions levels.

The following table defines the conditions for the use of MOVITRAC® LTE-B in drive applications:

Drive type / rating	Cat C1 (class B)	Cat C2 (class A)	Cat C3
230 V, 1-phase ratings LTEB xxxx 2B1-x-xx	No additional filtering required Use screened motor cable		
230 V / 400 V, 3-phase ratings LTEB xxxx 2A3-x-xx LTEB xxxx 5A3-x-xx	Use external filter type NF LT 5B3 0xx	No additional filtering required	
	Use screened motor cable		

In order for drives without internal filter to achieve compliance, an external filter and screened motor cable must be used:

Drive type / rating	Cat C1 (class B)	Cat C2 (class A)	Cat C3
230 V, 1-phase ratings LTEB xxxx 201-x-xx	Use external filter type NF LT 2B1 0xx Use screened motor cable		
230 V, 3-phase ratings LTEB xxxx 203-x-xx 400 V, 3-phase ratings LTEB xxxx 503-x-xx	Use external filter type NF LT 5B3 0xx Use screened motor cable		

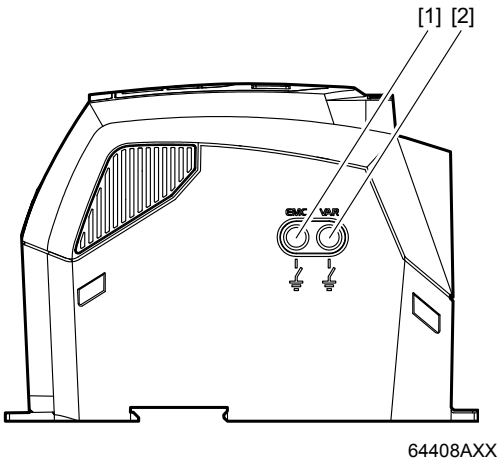
5.6.3 EMC filter varistor disconnection (IP20)

IP20 drives with an EMC filter fitted (e.g. MOVITRAC® LTE-B xxxx xAxx 00 and MOVITRAC® LTE-B xxxx xBxx 00) have an inherently higher leakage current to ground (Earth) than units without EMC filter. If more than 1 MOVITRAC® LTE-B is being operated on earth leakage detectors, an earth leakage detector trip may occur, particularly if screened motor cables are used. In this case, the EMC filter can be disconnected by removing the EMC screw on the side of the unit.

- ⚠ **WARNING** Risk of electrical shock. High voltages are present in the terminals and within the drive for up to 10 minutes after the electrical supply has been disconnected..

  Severe or fatal injuries.

  – Disconnect and isolate the MOVITRAC® LTE-B from the electrical supply at least 10 minutes before removing the EMC screw.



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[1] EMC screw

[2] VAR screw

The MOVITRAC® LTE-B units are fitted with components which suppress surges in the input supply voltage. These components protect the power input circuits against voltage spikes, which may originate from lightning strikes or other equipment on the same supply.

When carrying out a high potential (Flash) test on a drive system, the components which suppress voltage surges may cause the test to fail. To accommodate high voltage system tests remove both screws on the side of the unit, which disconnects these components. Once the high potential test has been completed, replace both screws and repeat the test. The test should then fail, indicating that the circuit is once again protected against voltage surges.

6 Startup

6.1 User interface

Keypad

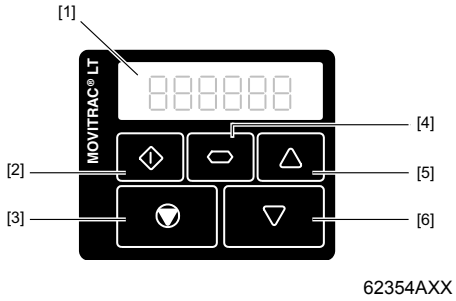
Each MOVITRAC® LTE-B has an integrated keypad as standard, allowing drive operation and setup without any additional equipment.

The keypad consists of 5 keys with the following functions:

Start / Run	• Enables running of motor • Reverses direction of rotation if bi-directional keypad mode is enabled
Stop / Reset	• Stops motor • Resets a tripped drive
Navigate	• Displays real time information • Press and hold to enter / exit parameter exit mode • Stores parameter changes
Up	• Increases speed in real time mode • Increases parameter values in parameter edit mode
Down	• Decreases speed in real time mode • Decreases parameter values in parameter edit mode

The <start> / <stop> keys on the keypad are disabled when the parameters have their factory default settings. To enable the operation of the <start> / <stop> keys on the keypad, set parameter *P-12* to 1 or 2 (see chapter "Standard parameters" on page 39).

The Navigate key alone is used to gain access to the parameter edit menu. Pressing and holding this key (> 1 sec) allows the user to toggle between the parameter edit menu and the real time display (where the drive operating status / running speed is displayed). By pressing this key (< 1 sec) the user is able to toggle between the operating speed and operating current during drive operation.



[1]	Display	[4]	Navigate
[2]	Start	[5]	Up
[3]	Stop / Reset	[6]	Down

- **INFORMATION**

  To reset to factory default settings, press the <up>, <down>, and <stop> keys simultaneously for > 2 s. The display then shows "P-deF". Press the <stop> key to acknowledge the change and to reset the drive.

Display

A standard 6-digit, 7-segment display is integrated into each drive to allow drive operation to be monitored and parameters to be set.

6.2 Easy startup

1. Connect the motor to the drive, checking the connection for the motor voltage rating.
2. Enter motor data from motor nameplate:
   - *P-08* = motor rated current
   - *P-09* = motor rated frequency
3. Enable the drive by making a connection between terminal 1 and 2.

6.2.1 Terminal mode (default setting)

To operate in terminal mode (default setting):

- Ensure that *P-12* is set to 0 (default setting).
- Connect a switch between terminals 1 and 2 on the user terminal block.
- Connect a potentiometer (1 – 10 k) between terminals 5, 6 and 7 with the wiper connected to pin 6.
- Close the switch to enable the drive.
- Adjust the speed with the potentiometer.

- **INFORMATION**

  The default settings (*P-12* = 0 and *P-15* = 0) for the optional switch in the IP55 / IP66 switch cabinet is FWD / REV. The motor speed can be set via the potentiometer.

6.2.2 Keypad mode

To operate in keypad mode:

- Change *P-12* to 1 (uni-directional) or 2 (bi-directional).
- Place a wire link or switch between terminals 1 and 2 on the user terminal block to enable the drive.
- Now press the <start> key. The drive enables at 0.0 Hz.
- Press the <up> key to increase the speed.
- To stop the drive, press the <stop> key.
- If the <start> key is now pressed, the drive will return to its original speed. (If bi-directional mode is enabled (*P-12* = 2), pressing the <start> key reverses the direction.)

- **INFORMATION**

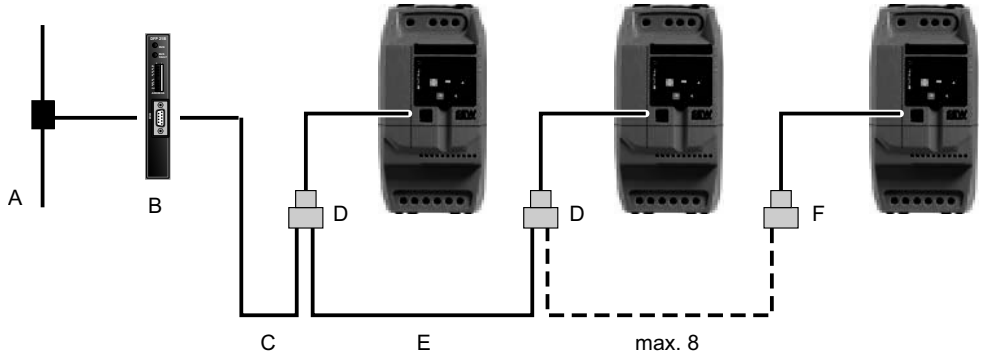
  The desired target speed can be preset by pressing the <stop> key whilst the drive is stopped. When the <start> key is subsequently pressed, the drive will then ramp to this speed.

6.2.3 Key parameters

- Adjust the maximum and minimum speed limit using *P-01* and *P-02*.
- Adjust the acceleration and deceleration times using *P-03* and *P-04*.
- Set up the motor nameplate data in parameters *P-07* to *P-10*.

6.2.4 Startup for operation via Fieldbus

- Start the drive as instructed at the start of chapter "Easy startup" (page 30).
- Set parameter *P-12* to 3 or 4 to control the drive via SBus
  - 3 = control word and speed setpoint via SBus, ramp times as defined in *P-03* / *P-04*.
  - 4 = control word, speed setpoint and ramp time via SBus.
- Set *P-14* to 101 (default) to give access to the extended menu.
- Set the values in *P-36* as follows:
  - For a unique SBus address set to between 1 and 63
  - For an SBus baud fitted to the gateway, set to 500 kBaud (default)
  - Define the timeout behavior of the drive when communication is interrupted:
    – 0: continue with last data (default)
    – t_xxx: trip after a delay of xxx milliseconds, trip-reset required
    – r_xxx: ramp to stop after a delay of xxx milliseconds, auto-restart with new data received
- Connect the drive via SBus to the DFx / UOH-Gateway according to chapter "RJ45 communication socket" (page 25).
- Set the dipswitch AS on the DFx / UOH-Gateway from OFF to ON to perform the autosetup for the fieldbus gateway. The LED "H1" on the gateway will flash repeatedly and then remain off. If the LED "H1" is lit then the gateway or one of the drives on the SBus isn't connected or wasn't started correctly.
- The configuration of the fieldbus communication between DFx / UOH-Gateway and bus master is described in the corresponding DFx manual.



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[A] Bus connection
[B] Gateway (e.g. DFx / UOH-Gateway)
[C] Cable to wire
[D] Splitter
[E] Selection cable
[F] Terminating resistor

Monitoring of the data transferred

The monitoring of the data transferred via the gateway can be achieved via one of the following options:

- MOVITOOLS® MotionStudio via the gateway's X24 engineering interface or optional via Ethernet
- The gateway's web page (e.g. on DFE3x Ethernet gateways)

Description of the transferred process data (PD)

Process-data words (16-bit) from the gateway to the drive (PO):

Description		Bit		Settings
PO1	Control word	0	Controller inhibit	0: Run 1: Stop
		1	Fast stop on 2nd deceleration ramp (*P-24*)	0: Fast stop 1: Run
		2	Stop on process ramp *P-03* / *P-04* or PO3	0: Stop 1: Run
		3 – 5	Reserved	0
		6	Trip reset	Edge 0 to 1 = trip reset
		7 – 15	Reserved	0
PO2	Setpoint speed	Scaling: 0x4000 = 100 % of maximum speed as set in *P-01* Values greater than 0x4000 or less than 0xC000 are limited to 0x4000 / 0xC000		
PO3	Ramp-Time (if *P-12* = 4)	Scaling: acceleration and deceleration in ms for rated speed n = 50 Hz		
	No function (if *P-12* = 3)	Ramp times as set in *P-03* and *P-04*		

Process-data words (16-bit) from the drive to the gateway (PI):

Description		Bit		Settings	Byte
PI1	Status word	0	Enable output stage	0: Disabled 1: Enabled	Low byte
		1	Inverter ready	0: Not ready 1: Ready	
		2	PO data enabled	1 if *P-12* = 3 or 4	
		3 – 4	Reserved		
		5	Fault / Warning	0: No fault 1: Fault	
		6 – 7	Reserved		
		8 – 15	Drive status if Bit 5 = 0 0x01 = output stage disabled 0x02 = no enable / no run 0x04 = enable / run 0x05 = factory setting is active		High byte
		8 – 15	Drive status if Bit 5 = 1 0x01 = drive output over current 0x04 = no enable / no run 0x06 = input phase imbalance trip / input phase loss 0x07 = DC bus over voltage 0x08 = Motor overload 0x09 = Parameter setting to factory default 0x0B = Over temperature trip 0x1A = External trip 0x2F = Communication link (SBus) loss trip 0x71 = Analog input error, current is less than 2.5 mA 0x75 = Under temperature trip 0xC6 = DC bus under voltage 0xC8 = General error / power stage error		
PI2	Actual speed	Scaling: 0x4000 = 100 % of maximum speed as set in *P-01*			
PI3	Actual current	Scaling: 0x4000 = 100 % of maximum current as set in *P-08*			

Example:

The following information will be sent to the drive if:

- the binary inputs are configured and wired correctly to enable the drive
- parameter *P-12* is set to 3 to operate the drive via SBus

Description		Value	Description
PO1	Control word	0	Fast stop on 2nd deceleration ramp (*P-24*)
		1	Coast to stop
		2	Ramp to stop on process ramp (*P-04*)
		3 – 5	Reserved
		6	Ramp up (*P-03*) and run with setpoint speed (PO2)
PO2	Setpoint speed	0x4000	= 16384 = maximum speed e.g. 50 Hz (*P-01*) clockwise
		0x2000	= 8192 = 50 % of maximum speed e.g. 25 Hz clockwise
		0xC000	= –16384 = maximum speed e.g. 50 Hz *(P-01)* counterclockwise
		0x0000	= 0 = minimum speed as set in *P-02*

The process data read back from the drive should be in run condition:

Description		Value	Description
PI1	Status word	0x0407	Status = run Output stage enabled Drive ready PO-Data enabled
PI2	Actual speed	Should be equal to PO2 (setpoint speed)	
PI3	Actual current	Depends on speed and load	

7 Operation

To enable the operational status of the drive to be determined at any time, the following information is displayed:

Status	Mnemonic display
Drive OK	Static drive status
Drive running	Operational drive status
Fault / trip	Fault

7.1 Drive status

7.1.1 Static drive status

The following list indicates which mnemonics will be displayed as drive status information when the motor is at a standstill.

Mnemonic	Description
StoP	Drive power stage disabled. This message will be displayed when the drive is stopped and no faults are present. The drive is ready for normal operation.
P-deF	Default parameters loaded. This message will be displayed when the user invokes the command to load the factory default parameters. The <reset> key has to be pressed before the drive can be operated again.
Stndby	Drive is in standby. This message will be displayed 30 seconds after the drive is on 0 speed and the setpoint is 0 as well.

7.1.2 Operational drive status

The following list indicates which mnemonics will be displayed as drive status information when the motor is in operation.

Use the <navigate> key on the keypad to toggle between output frequency, output current and speed.

Mnemonic	Description
H xxx	The drive output frequency is displayed in Hz. This message will be displayed when the drive is running.
A xxx	The drive output current is displayed in Amp. This message will be displayed when the drive is running.
xxxx	The drive output speed is displayed in rpm. This message will be displayed when the drive is running and the motor rated speed is entered in parameter *P-10*.
C xxx	Speed scaling factor (*P-40*).
. . . . . (flashing dots)	Output current of the drive exceeds the current which is set in *P-08*. MOVITRAC® LTE-B will monitor the level and duration of the overload. Depending on the overload level, the MOVITRAC® LTE-B will trip with "I.t-trP".

7.1.3 Trip reset

In case a trip occurs (see chapter "Fault Codes" on page 37), the trip can be reset by pressing the <Stop> key or by opening or closing digital input 1.

8 Service and fault codes

8.1 Troubleshooting

Symptom	Cause and Solution
Overload or over-current trip on unloaded motor during acceleration	Check Star / Delta terminal connection in motor. Rated operating voltage of drive and motor should match. The Delta connection always gives the lower voltage rating of a dual voltage motor.
Overload or over-current – motor does not spin	Check for locked rotor. Check that the mechanical brake is released (if fitted).
Drive will not enable – display remains on "StoP"	Check that the hardware enable signal is applied to digital input 1. Ensure that the User +10 V output voltage (between terminals 5 and 7) is correct. If not, check wiring to user terminal strip. Check *P-12* for terminal / keypad mode. If keypad mode selected, press the <start> key. Check that supply voltage is within specification.
Drive will not power up in very cold ambient temperatures	If the ambient temperature is less than –10 °C, the drive may not power up. Ensure that a local heating source keeps the ambient temperature above 0 °C in these conditions.
Extended menus cannot be accessed	Ensure that *P-14* is set to the extended access code. This is "101" unless the code in *P-37* has been changed by the user.
Parameters can't be changed. Display shows "L" in front of value	Parameters are locked. Check that parameter P38=0 to have access to parameters. Some parameters can't be changed while the drive is running. Check that the drive is not enabled. (Digital input 1).

8.2 Fault history

The parameter *P-13* in the parameter mode holds a record of the 4 most recent trips and / or events. Each trip will be displayed in abbreviated text, with the most recent trip being displayed first (on entering into the value of *P-13*).

Whenever a new trip occurs, this is entered at the top of the list and the other trips move down. The oldest trip will then be removed from the trip log.

- **INFORMATION**

  If the most recent trip in the trip log is an "under-voltage" trip, further under-voltage trips will not be entered into the trip log. This is to ensure that the trip log does not fill up with under-voltage trips which occur naturally every time the MOVITRAC® LTE-B is turned off.

8.3 Fault codes

Trip message	Explanation	Solution
"P-dEF"	Factory default parameters have been loaded.	Press <stop> key. Drive is ready to configure for particular application.
"O-I"	Over-current on drive output to motor. Excess load on the motor. Over temperature on the drive heatsink.	Trip during constant speed: • Investigate overload or malfunction. Trip on drive enable: • Check for stalled or jammed motor. • Check for star-delta motor wiring error. • Check cable length is within drive specification. Trip during operation: • Check for sudden overload or malfunction. • Possible cable fault between drive and motor. • The acceleration / deceleration time may be too short, requiring too much power. If *P-03* or *P-04* cannot be increased, a bigger drive is required.
"I.t-trP"	Drive overload trip, occurring when the drive has been delivering > 100 % rated current (set in *P-08*) for a period of time. The display flashes to indicate an overload condition.	• Increase acceleration ramp (*P-03*) or decrease motor load. • Check cable length is within drive specification. • Check the load mechanically to ensure it is free and no jams, blockages or other mechanical faults exist.
"OI-b"	Brake channel over current. Over current in the brake resistor circuit.	• Check the cabling to the braking resistor. • Check the braking resistor value. • Ensure minimum resistance values from the rating tables are observed.
"OL-br"	Braking resistor overload	• Increase deceleration time, reduce load inertia or add further braking resistors in parallel. • Ensure minimum resistance values from the rating tables are observed.
"PS-trP"	Internal power stage fault	Trip on drive enable: • Check for wiring error or short circuit. • Look for ph-ph or ph-Earth short circuit. Trip during operation: • Check for sudden overload or over-temperature. • Additional space or cooling may be required.
"O.Uolt"	Over-voltage on DC bus	• Check supply voltage is within limits. • If trip occurs on deceleration, increase deceleration time in *P-04*. • If necessary, connect a braking resistor. • If a braking resistor is already fitted, ensure *P-39* is set to 1.
"U.Uolt"	Under-voltage on DC bus	Occurs routinely when drive powered down. If it occurs whilst running, check supply voltage.
"O-t"	Heatsink over temperature	• Check drive cooling and enclosure dimensions. • Additional space or cooling may be required.
"U-t"	Under temperature	• Occurs when ambient temperature is less than –10 °C • Raise temperature to over –10 °C in order to start the drive.
"th-Flt"	Faulty thermistor on heatsink	Contact SEW-EURODRIVE Service.
"E-triP"	External trip (connected to digital input 3)	• E-trip on digital input 3. Normally closed contact has opened for some reason. • Check motor thermistor (if connected).
"SC-trP"	Communication loss trip	• Check communication link between drive and external devices. • Make sure each drive in the network has its unique address.

Trip message	Explanation	Solution
"P-LOSS"	Input phase loss trip	Drive intended for use with a 3-phase supply has lost one input phase.
"SPIn-F"	Spin start failed	Spin start function failed to detect the motor speed.
"dAtA-F"	Internal memory fault	• Parameters not saved, defaults reloaded. • Try again. If problem reoccurs, contact SEW-EURODRIVE Service.
"EE-F"	EEPROM fault. Parameters not saved, defaults reloaded.	EEPROM fault. Parameters not saved, defaults reloaded. If fault reoccurs contact SEW-EURODRIVE Service.
"4-20 F"	Analog input current out of range	• Check input current is within range defined in *P-16*. • Check cable connection.
"SC-FLt"	Internal drive fault	Contact SEW-EURODRIVE Service.
"FAULtY"		
"Prog_ _"		

8.4 SEW electronics service

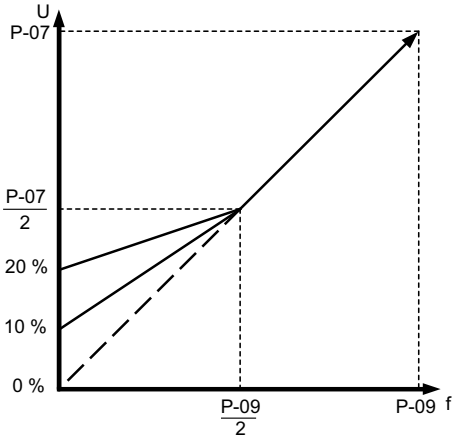
Send in for repair Please contact the **SEW-EURODRIVE electronics service if a fault cannot be rectified**.

Please provide the following information when sending the unit in for repair:

- Serial number (→ nameplate)
- Unit designation
- Brief description of the application (application, control via terminals or serial)
- Connected components (motor, etc.)
- Nature of the error
- Accompanying circumstances
- Your own presumption of what has happened
- Any unusual events preceding the problem, etc.

9 Parameters

9.1 Standard parameters

Parameter	Description	Range		Default	Explanation
P-01	Max. speed limit (Hz or rpm)	*P-02* to 5 × *P-09* (max. 500 Hz)		50.0 Hz[1)]	Maximum speed limit in Hz or rpm (see *P-10*)
P-02	Min. speed limit (Hz or rpm)	0 – *P-01* (max. 500 Hz)		0.0 Hz	Minimum speed limit in Hz or rpm (see *P-10*)
P-03	Acceleration ramp time (s)	0.0 – 600 s		5.0 s	Acceleration ramp time from 0 to 50 Hz (fixed) in seconds.
P-04	Deceleration ramp time (s)	0.0 – 600 s		5.0 s	Deceleration ramp time from 50 Hz (fixed) to standstill in seconds. If set to 0, then the fastest possible ramp time without trip is activated.
P-05	Stop mode select	0	Ramp to stop	0	If the supply is lost and *P-05* = 0, then the drive will try to continue running by reducing the speed of the load using the load as a generator. If *P-05* = 2, then the drive will ramp to stop using the *P-24* deceleration ramp when mains supply is lost. Also activates constant power braking mode for normal braking.
		1	Coast to stop		
		2	Ramp to stop (fast stop)		
P-06	Energy optimizer	0	Disabled	0	When enabled, automatically reduces applied motor voltage on light load.
		1	Enabled		
P-07	Motor rated voltage	0, 20 – 250 V		230 V	Rated (nameplate) voltage of the motor in volts. The value is limited to 250 V for low voltage drives. Setting to 0 disables voltage compensation.
		0, 20 – 500 V		400 V[2)]	
P-08	Motor rated current	25 – 100 % of drive current rating		DR-Motor rating	Rated (nameplate) current of the motor in amps.
P-09	Motor rated frequency	25 – 500 Hz		50 Hz[1)]	Rated (nameplate) frequency of the motor.
P-10	Motor rated speed	0 – 30000 rpm		0	When not set to 0 all speed-related parameters are displayed in rpm. Activates slip compensation when motor nameplate speed is set.
P-11	Voltage boost	0 – 20 % of max output voltage. Resolution 0.1 % • Size 1 = 20 % • Size 2 = 15 % • Size 3 = 10 %		Motor power dependent	Applies an adjustable boost to the MOVITRAC® voltage output at low speed to assist with starting 'sticky' loads. For continuous applications at low speed use a force ventilated motor. 

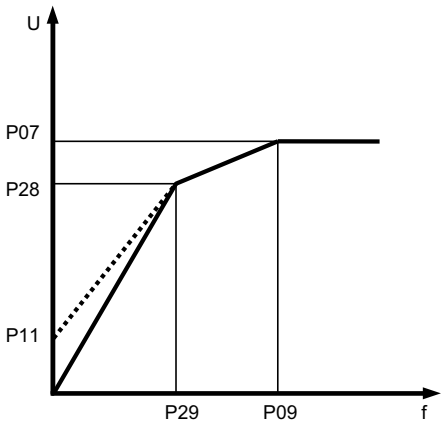
Parameter	Description	Range		Default	Explanation
P-12	Terminal / keypad / SBus control	0	Terminal control	0 (Terminal control)	See chapter "Easy startup" on page 30.
		1	Keypad control (fwd only)		
		2	Keypad control (fwd / rev to toggle between fwd and rev using <start> key)		
		3	SBus network control with internal acceleration / deceleration ramps		
		4	SBus network control with accelaration / deceleration ramp adjustment via bus		
P-13	Trip log	Last 4 trips stored		No fault	Most recent 4 trips stored in order of occurrence, i.e. on entry, displays shows most recent first. Press the up and down buttons to view stored trips. (See chapter "Fault codes" on page 37.)
P-14	Extended menu access code	0 – 9999		0	Set to "101" (default) for extended menu access. Change code in *P-37* to prevent unauthorized access to the extended parameter set.

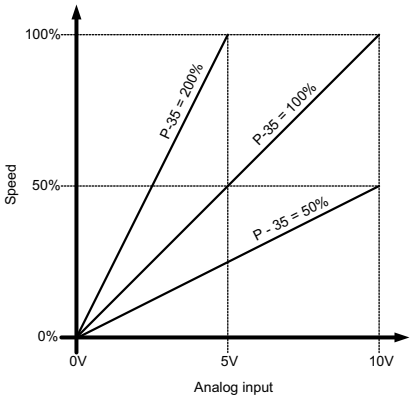
1) 60 Hz (American version only)

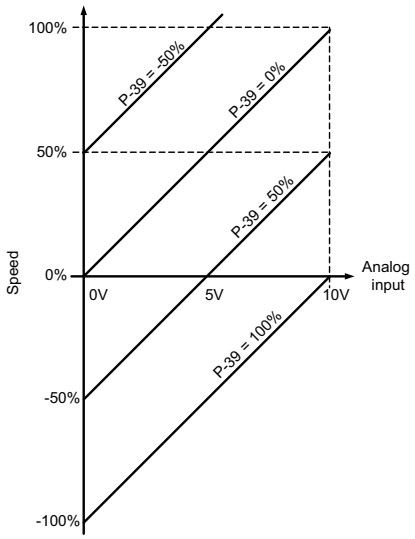
2) 460 V (American version only)

9.2 Extended parameters

Parameter	Description	Range		Default	Explanation
P-15	Digital input function set	0 – 12		0	Defines the function of the digital inputs. (See chapter "P-15 Digital inputs function select" on page 44.)
P-16	Analog input V / mA	0 – 10 V, b 0 – 10 V, 0 – 20 mA t 4 – 20 mA, r 4 – 20 mA t 20 – 4 mA, r 20 – 4 mA		0 – 10 V	Configures the analog input format. 0 – 10 V: unipolar mode (voltage input) b 0 – 10 V: bipolar mode (voltage input) • Can be used for bipolar input signals • 50 % offset can be applied to *P-39* • 200 % scaling in *P-35* gives ± *P-01* 0 – 20 mA: unipolar mode (current input) 4 – 20 mA: unipolar mode (current input) 20 – 4 mA: reverse unipolar current mode "t" indicates the drive will trip if the signal is removed whilst the drive is enabled. "r" indicates the drive will ramp to preset speed 1 if the signal is removed whilst the drive is enabled.
P-17	Output switching frequency	2 – 16 kHz		4 / 8 kHz	Sets maximum output switching frequency Higher switching frequency means less noise development on the motor but higher losses in the output stage.
P-18	User relay output select	0	Drive enabled	1 (Drive healthy)	User relay settings. Digital output limit defined by value in *P-19*. Disabled: contacts open Enabled: contacts closed
		1	Drive healthy (not tripped)		
		2	Motor at target speed		
		3	Drive tripped		
		4	Motor speed ≥ limit		
		5	Motor current ≥ limit		
		6	Motor speed < limit		
		7	Motor current < limit		
P-19	User relay output limit	0 – 200 %		100.0 %	Sets the limit for *P-18* and *P-25*.

Parameter	Description	Range	Default	Explanation
P-20	Preset speed 1	–*P-01* (min.) to *P-01* (max.)	0.0 Hz	Defines preset / jog speed 1
P-21	Preset speed 2	–*P-01* (min.) to *P-01* (max.)	0.0 Hz	Defines preset / jog speed 2
P-22	Preset speed 3	–*P-01* (min.) to *P-01* (max.)	0.0 Hz	Defines preset / jog speed 3
P-23	Preset speed 4	–*P-01* (min.) to *P-01* (max.)	0.0 Hz	Defines preset / jog speed 4
P-24	Deceleration ramp time 2	0 – 25 s	0	Selected via digital inputs or on mains loss as set in *P-05*.
P-25	Analog output function select	0 Drive enabled (digital) 1 Drive healthy (digital) 2 Motor at target speed (digital) 3 Drive tripped (digital) 4 Motor speed ≥ limit (digital) 5 Motor current ≥ limit (digital) 6 Motor speed < limit (digital) 7 Motor current < limit (digital) 8 Motor speed (analog) 9 Motor current (analog)	8	**Digital output mode** • Options 0 – 7: select a digital voltage output signal – Disabled: 0 V – Enabled: +24 V, (20 mA limit) • Options 4 – 7: digital output is enabled using the level set in *P-19*. **Analog output mode** • Option 8: Motor speed signal range 0 – 10 V = 0 – 100 % of *P-01* • Option 9: Motor current signal range 0 – 10 V = 0 – 200 % of *P-08*
P-26	Skip frequency hysteris band	0 – *P-01*	0.0 Hz	Speed reference held at upper or lower skip frequency limit until input reaches opposite skip frequency limit. Speed ramps through the skip frequency band at a rate set in *P-03* and *P-04*.
P-27	Skip frequency	*P-02* (min.) – *P-01* (max.)	0 Hz	Skip frequency centre point.
P-28	V/F characteristic adjustment voltage	0 – *P-07*	0 V	Adjusts the applied motor voltage to this value at the frequency set in *P-29*. 
P-29	V/F characteristic adjustment frequency	0 – *P-09*	0 Hz	Sets the frequency at which the V/F adjustment voltage set in *P-28* is applied.
P-30	Terminal mode restart function	Edge-r, Auto-0 – Auto-5	Auto-0	Number of automatic resets.
P-31	Keypad mode restart function	0 Minimum speed 1 Previous speed 2 Minimum speed (Auto-run) 3 Previous speed (Auto-run)	1	When set to 0 or 1, the <start> key also has to be used. When set to 2 or 3, the drive enables when the drive hardware enable signal is present. The speed can then be varied on the keypad.
P-32	DC injection enable / duration	0 – 25 s	0.0 s	When > 0, DC injection braking is activated when speed reaches zero with stop signal applied. Only applied on disable (Stop), not on enable. Uses the level set in *P-11*.

Parameter	Description	Range		Default	Explanation
P-33	Spin start[1)]	0	Disabled	0	When enabled, the drive starts from the detected rotor speed. Short stay delay is possible if the rotor is stationary. For size 1 drives, *P-33 = 1* enables DC injection braking on enable. The duration and levels are set by *P-32* and *P-11* respectively.
		1	Enabled		
P-34	Brake chopper enable	0	Disabled	0	All braking resistors must be protected by external protection devices.
		1	Enabled with s/w protection for BWLT 100 002 only		
		2	Enabled for other BWxxxx with external protection		
P-35	Analog input scaling factor	0 – 500 %		100.0 %	Analog input scaling, resolution 0.1 %. 
P-36	Comms address	Adr: 0 disable, 1 – 63		1	Adr: Unique drive address for comms networks. Setting a baudrate enables SBus at that baudrate. The time before a trip in the event of a communication loss can be set in milliseconds. Setting "0" disables the comms trip. "t" indicates the drive will trip (SC-trP) if time is exceeded. "r" indicates the drive will ramp to stop and trip if time is exceeded
	SBus enable / baudrate select	125 – 1000 kBaud		500 kBaud	
	Trip enable / delay	0 (no trip), t 30, 100, 1000, 3000 (ms) r 30, 100, 1000, 3000 (ms)		100 ms	
P-37	Access code definition	0 – 9999		101	Defines *Extended Parameter Set* access code *P-14*.
P-38	Parameter access lock	0	All parameters can be changed and are auto-saved on power down.	0 (Write access and auto-save enabled)	Controls user access to parameters. If *P-38* = 0, all parameters can be changed. These changes will be stored automatically. If *P-38* = 1, parameters are locked and cannot be changed.
		1	Read-only. No changes allowed.		

Parameter	Description	Range	Default	Explanation
P-39	Analog input offset	–500 to 500 %	0.0 %	Analog input offset, resolution 0.1 %. 
P-40	Display speed scaling factor	0 – 6	0.000	Scales speed by this factor. If *P-10* = 0, speed in Hz scaled by this factor. If *P-10* > 0, speed in rpm scaled. Displayed as real-time variable on the drive display.

1) Sizes 2 and 3 only. Size 1 works with DC voltage.

9.3 P-15 Digital inputs function select

The functionality of the digital inputs within the MOVITRAC® LTE-B is user programmable, allowing the user to select the functions required for the application.

The following tables define the functions of the digital inputs depending on the value of parameter *P-12 (Terminal / keypad / SBus control)* and *P-15 (Digital input function select)*.

9.3.1 Terminal mode

If *P-12* = 0 (terminal mode) then use the following table.

P-15	Digital input 1	Digital input 2	Digital input 3	Analog input	Comments
0	Open : Stop (Disable) Closed : Run (Enable)	Open : Forward run Closed : Reverse run	Open : Analog speed ref Closed : Preset speed 1	Analog input reference	–
1	Open : Stop (Disable) Closed : Run (Enable)	Open : Analog speed ref Closed : Preset speed 1 / 2	Open : Preset speed 1 Closed : Preset speed 2	Analog input reference	–
2	Open : Stop (Disable) Closed : Run (Enable)	Open	Open	Open : Preset speed 1 – 4 Closed : Max. speed (*P-01*)	Preset speed 1
		Closed	Open		Preset speed 2
		Open	Closed		Preset speed 3
		Closed	Closed		Preset speed 4
3	Open : Stop (Disable) Closed : Run (Enable)	Open : Analog speed ref Closed : Preset speed 1	External trip input: Open : Trip Closed : Run	Analog input reference	Connect external PTC thermistor or similar to digital input 3.
4	Open : Stop (Disable) Closed : Run (Enable)	Open : Forward run Closed : Reverse run	Open : Analog speed ref Closed : Preset speed 1	Analog input reference	–
5	Open : Forward stop Closed : Forward run	Open : Reverse stop Closed : Reverse run	Open : Analog speed ref Closed : Preset speed 1	Analog input reference	Closing digital inputs 1 and 2 together carries out a fast stop.
6	Open : Stop (Disable) Closed : Run (Enable)	Open : Forward run Closed : Reverse run	External trip input: Open : Trip Closed : Run	Analog input reference	Connect external PTC thermistor or similar to digital input 3.
7	Open : Forward stop Closed : Forward run	Open : Reverse stop Closed : Reverse run	External trip input: Open : Trip Closed : Run	Analog input reference	Closing digital inputs 1 and 2 together stops the drive with deceleration ramp 2 (*P-24*).
8	Open : Stop (Disable) Closed : Run (Enable)	Open : Forward run Closed : Reverse run	Open	Open	Preset speed 1
			Closed	Open	Preset speed 2
			Open	Closed	Preset speed 3
			Closed	Closed	Preset speed 4
9	Open : Forward stop Closed : Forward run	Open : Reverse stop Closed : Reverse run	Open	Open	Preset speed 1
			Closed	Open	Preset speed 2
			Open	Closed	Preset speed 3
			Closed	Closed	Preset speed 4
10	Normally Open (N.O.) Momentarily close to run	Normally Closed (N.C.) Momentarily open to stop	Open : Analog speed ref Closed : Preset speed 1	Analog input reference	–

P-15	Digital input 1	Digital input 2	Digital input 3	Analog input	Comments
11	Normally Open (N.O.) Momentarily close to run forward	Normally Closed (N.C.) Momentarily open to stop	Normally Open (N.O.) Momentarily close to run reverse	Analog input reference	Closing digital inputs 1 and 3 together stops the drive with decelera-tion ramp 2 (*P-24*).
12	Open : Stop (Disable) Closed : Run (Enable)	Closed to run Open to activate decelera-tion ramp 2	Open : Analog speed ref Closed : Preset speed 1	Analog input reference	–

9.3.2 Keypad mode

If parameter *P-12* = 1 or 2 (keypad mode) then use the following table.

P-15	Digital input 1	Digital input 2	Digital input 3	Analog input	Comments
0, 1, 5, 8 – 12	Open : Stop (Disable) Closed : Run (Enable)	Closed : Remote UP pushbutton	Closed : Remote DOWN pushbutton	Open : Forward +24 V: Reverse	–
2	Open : Stop (Disable) Closed : Run (Enable)	Closed : Remote UP pushbutton	Closed : Remote DOWN pushbutton	Open : Keypad speed ref +24 V: Preset speed 1	–
3	Open : Stop (Disable) Closed : Run (Enable)	Closed : Remote UP pushbutton	External trip input: Open : Trip Closed : Run	Closed : Remote DOWN pushbutton	Connect external PTC thermistor or similar to digital input 3.
4	Open : Stop (Disable) Closed : Run (Enable)	Closed : Remote UP	Open : Keypad speed ref Closed : Analog input	Analog input ref	–
6	Open : Stop (Disable) Closed : Run (Enable)	Open : Forward run Closed : Reverse run	External trip input: Open : Trip Closed : Run	Open : Keypad speed ref +24 V: Preset speed 1	Connect external PTC thermistor or similar to digital input 3.
7	Open : Forward stop Closed : Forward run	Open : Reverse stop Closed : Reverse run	External trip input: Open : Trip Closed : Run	Open : Keypad speed ref +24 V: Preset speed 1	Closing digital inputs 1 and 2 together stops the drive with deceleration ramp 2 (*P-24*).

9.3.3 SBus control mode

If parameter *P-12* = 3 or 4 (SBus control mode) then use the following table.

P-15	Digital input 1	Digital input 2	Digital input 3	Analog input	Comments
0, 1, 2, 4, 5, 8 – 12	Open : Stop (Disable) Closed : Run (Enable)	No effect	No effect	No effect	Digital input 1 must be closed for the drive to run. Start and stop commands are given via the gateway.
3	Open : Stop (Disable) Closed : Run (Enable)	Open : Master speed ref Closed : Preset speed 1	External trip input: Open : Trip Closed : Run	No effect	Connect external PTC thermistor or similar to digital input 3.
6	Open : Stop (Disable) Closed : Run (Enable)	Open : Master speed ref Closed : Analog input	External trip input: Open : Trip Closed : Run	Analog input reference	When digital input 2 is open, start and stop are controlled via gateway. When digital input 2 is closed, drive auto runs if digital input 1 is closed.
7	Open : Stop (Disable) Closed : Run (Enable)	Open : Master speed ref Closed : Keypad speed ref	External trip input: Open : Trip Closed : Run	No effect	When digital input 2 is open, start and stop are controlled via gateway. When digital input 2 is closed, drive auto runs if digital input 1 is closed, depending on *P-31*.

9.4 Real-time monitoring parameters (read-only)

Parameter group zero provides access to internal drive parameters for monitoring purposes. These parameters cannot be adjusted.

Parameter	Description	Display range	Explanation
P00 (1)	Analog input 1 value	0 – 100 %	100 % = max. input voltage
P00 (2)	Reserved	–	Reserved
P00 (3)	Speed reference input	*–P1-01* to *P1-01*	Speed displayed in Hz if *P-10* = 0, otherwise in rpm.
P00 (4)	Digital input status	Binary value	Digital drive input status
P00 (5)	Reserved	0	Reserved
P00 (6)	Reserved	0	Reserved
P00 (7)	Applied motor voltage	AC 0 – 600 V	Value of RMS voltage applied to motor
P00 (8)	DC bus voltage log	DC 0 – 1000 V	Internal DC bus voltage
P00 (9)	Heatsink temperature	–20 °C to 100 °C	Temperature of heatsink in °C
P00 (10)	Hours run meter	0 – 99999 hours	Not affected by resetting factory default parameters
P00 (11)	Run time since last trip (1)	99999 hours	Run-time clock stopped by drive disable (or trip), reset on next enable only if a trip occurred. Reset also on next enable after a power down.
P00 (12)	Run time since last trip (2)	99999 hours	Run-time clock stopped by drive disable (or trip), reset on next enable only if a trip occurred (undervoltage not considered a trip). Not reset by power down / power up cycling unless a trip occurred prior to power down. Also on next enable after a power down.
P00 (13)	Run time since last disable	99999 hours	Run-time clock stopped on drive disable, value reset on next enable.
P00 (14)	Drive effective switching frequency	2 – 16 kHz	Actual drive effective output switching frequency. This value may be lower than the selected frequency in *P-17* if the drive is too hot. The drive will automatically reduce the switching frequency to prevent an over-temperature trip and maintain operation.
P00 (15)	DC bus voltage log	0 – 1000 V	8 most recent values prior to trip
P00 (16)	Thermistor temperature log	–20 °C to 120 °C	8 most recent values prior to trip
P00 (17)	Motor current	0 to 2 × rated current	8 most recent values prior to trip
P00 (18)	Software ID, IO and motor control	e.g. "1.00", "47AE"	Version number and checksum. "1" on LH side indicates I/O processor "2" on LH side indicates motor control
P00 (19)	Drive serial number	000000 – 999999 00-000 – 99-999	Unique drive serial number e.g. 540102 / 32 / 005
P00 (20)	Drive identifier	Drive rating / Software version	Drive rating, drive type and software version codes e.g. 0.37, 1 230, 3 P-out

Parameter group zero access

When *P-14* = *P-37* (101 in default setting) all parameters are visible.

When the user scrolls to *P-00*, pressing the <navigate> key will display "P00-z", where z represents the secondary number within *P-00* (i.e. 1 – 14). The user can then scroll to the required *P-00* parameter.

Pressing the <navigate> key once more will then display the value of that particular group zero parameter.

For those parameters which have multiple values (e.g. software ID), pressing the up and down buttons will display the different values within that parameter.

Pressing the <navigate> key quickly returns to the next level up. If the <navigate> key is pressed again quickly (without pressing the up or down buttons), the display changes to the next level up (main parameter level, i.e. *P-00*).

If the up or down buttons are pressed whilst on the lower level (e.g. *P00-05*) to change the *P-00* index, pressing the <navigate> key quickly displays that parameter value.

10 Technical Data

10.1 Conformance

All products conform to the following international standards:

- CE marked for low voltage directive
- IEC 664-1 Insulation coordination within low voltage systems
- UL 508C Power conversion equipment
- EN 61800-3 Adjustable speed electrical power drive systems – Part 3
- EN 61000-6 / -2, -3, -4 Generic immunity / Emission standards (EMC)
- Enclosure protection level according to NEMA 250, EN 60529
- Flammability rating according to UL 94
- C-Tick
- cUL

10.2 Environmental

Operational ambient temperature range	–10 °C to 50 °C at default PWM frequency (IP20) –10 °C to 40 °C at default PWM frequency (IP55, NEMA 12k / IP66, NEMA 4X)
Maximum ambient temperature derating	4 % / °C up to 55 °C for IP20 drives 4 % / °C up to 45 °C for IP55 / IP66 drives
Storage ambient temperature range	–40 °C to 60 °C
Maximum altitude for rated operation	1000 m
Derating above 1000 m	1 % / 100 m to max. 2000 m
Maximum relative humidity	95 % (non-condensing)
Protection rating cabinet drive	IP20
Protection rating high enclosure drive	IP55, NEMA 12 k / IP66, NEMA 4X

10.3 Output power and current ratings

10.3.1 1-phase system AC 115 V for 3-phase AC 230 V motors (voltage doubler)

MOVITRAC® LTE-B – EMC filter class 0					
IP20 Standard	Type	MC LTE B...	0004-101-1-00	0008-101-1-00	0011-101-4-00
	Part number		08296839	08296847	08296855
IP55 / NEMA 12 housing	Type	MC LTE B...	0004-101-1-10	0008-101-1-10	0011-101-4-10
	Part number		08297754	08297762	08297770
IP55 / NEMA 12 housing with switch	Type	MC LTE B...	0004-101-1-20	0008-101-1-20	0011-101-4-20
	Part number		08297290	08297304	08297312
IP66 / NEMA 4X housing with switch	Type	MC LTE B...	0004-101-1-40	0008-101-1-40	0011-101-4-40
	Part number		18252540	18252559	18252567
INPUT					
Supply voltage		V_{mains}	1 × AC 115 V ± 10 %		
Supply frequency		f_{mains}	50 / 60 Hz ± 5 %		
Supply fuse rating		[A]	10	16 (15)[1)]	20
Nominal input current		[A]	6.7	12.5	16.8
OUTPUT					
Recommended motor power		[kW]	0.37	0.75	1.1
		[hp]	0.5	1.0	1.5
Output voltage		V_{motor}	3 × 20 – 250 V (voltage doubler)		
Output current		[A]	2.3	4.3	5.8
Motor cable size Cu 75C		[mm^2]	1.5		
		[AWG]	16		
Max. motor cable length	Shielded	[m]	25		100
	Unshielded		40		150
GENERAL					
Size			1		2
Heat loss at nominal output power		[W]	11	22	33
Min. braking resistor value		[Ω]	–		47

1) Recommended value for UL compliance

10.3.2 1-phase system AC 230 V for 3-phase AC 230 V motors

Without Filter

MOVITRAC® LTE-B – EMC filter class 0								
IP20 Standard[1]	Type	MCLTE B...	0004-201-1-00	0008-201-1-00	0015-201-1-00	0015-201-4-00	0022-201-4-00	0040-201-4-00
	Part number		08296863	08296871	08296898	08296901	08296928	18250394
IP55 / NEMA 12 housing[1]	Type	MCLTE B...	0004-201-1-10	0008-201-1-10	0015-201-1-10	0015-201-4-10	0022-201-4-10	0040-201-4-10
	Part number		08297789	08297797	08297800	08297819	08297827	18250408
IP55 / NEMA 12 with switch[1]	Type	MCLTE B...	0004-201-1-20	0008-201-1-20	0015-201-1-20	0015-201-4-20	0022-201-4-20	0040-201-4-20
	Part number		08297320	08297339	08297347	08297355	08297363	18250416
INPUT								
Supply voltage		V_{mains}	1 × AC 200 – 240 V ± 10 %					
Supply frequency		f_{mains}	50 / 60 Hz ± 5 %					
Supply fuse rating		[A]	10	16	20		32 (35)[2]	40
Nominal input current		[A]	6.7	12.5	14.8	14.8	22.2	35
OUTPUT								
Recommended motor power		[kW]	0.37	0.75	1.5	1.5	2.2	4
		[hp]	0.5	1	2	2	3	5
Output voltage		V_{motor}	3 × 20 – 250 V					
Output current		[A]	2.3	4.3	7	7	10.5	15
Motor cable size Cu 75C		[mm^2]	1.5					2.5
		[AWG]	16					18
Max. motor cable length	Shielded	[m]	25			100		
	Unshielded		40			150		
GENERAL								
Size			1			2		3
Heat loss at nominal output power		[W]	11	22	45	45	66	120
Min. braking resistor value		[Ω]	–			47		

1) Unit for America, Asia & Africa

2) Recommended value for UL compliance

With Filter

MOVITRAC® LTE-B – EMC filter class B								
IP20 Standard with filter[1]	Type	MC LTE B...	0004-2B1-1-00	0008-2B1-1-00	0015-2B1-1-00	0015-2B1-4-00	0022-2B1-4-00	0040-2B1-4-00
	Part number		08297061	08297088	08297096	08297118	08297126	18250424
IP55 / NEMA 12 housing with filter[1]	Type	MC LTE B...	0004-2B1-1-10	0008-2B1-1-10	0015-2B1-1-10	0015-2B1-4-10	0022-2B1-4-10	0040-2B1-4-10
	Part number		08297975	08297983	08297991	08298009	08298017	18250432
IP55 / NEMA 12 with switch and filter[1]	Type	MC LTE B...	0004-2B1-1-20	0008-2B1-1-20	0015-2B1-1-20	0015-2B1-4-20	0022-2B1-4-20	0040-2B1-4-20
	Part number		08297525	08297533	08297541	08297568	08297576	18250440
IP66 / NEMA 4X housing with switch and filter[1]	Type	MC LTE B...	0004-2B1-1-40	0008-2B1-1-40	0015-2B1-1-40	0015-2B1-4-40	0022-2B1-4-40	0040-2B1-4-40
	Part number		18251013	18251021	18251048	18251056	18251064	18251072
INPUT								
Supply voltage		V_{mains}	1 × AC 200 – 240 V ± 10 %					
Supply frequency		f_{mains}	50 / 60 Hz ± 5 %					
Supply fuse rating		[A]	10	16	20		32 (35)[2]	40
Nominal input current		[A]	6.7	12.5	14.8	14.8	22.2	35
OUTPUT								
Recommended motor power		[kW]	0.37	0.75	1.5	1.5	2.2	4
		[hp]	0.5	1	2	2	3	5
Output voltage		V_{motor}	3 × 20 – 250 V					
Output current		[A]	2.3	4.3	7	7	10.5	15
Motor cable size Cu 75C		[mm^2]	1.5					2.5
		[AWG]	16					18
Max. motor cable length	Shielded	[m]	25			100		
	Unshielded		40			150		
GENERAL								
Size			1			2		3
Heat loss at nominal output power		[W]	11	22	45	45	66	120
Min. braking resistor value		[Ω]	–			47		

1) Unit for Europe, Australia & New Zealand

2) Recommended value for UL compliance

10.3.3 3-phase system AC 230 V for 3-phase AC 230 V motors

Without Filter

MOVITRAC® LTE-B – EMC filter class 0								
IP20 Standard[1)]	Type	MC LTE B...	0004-203-1-00	0008-203-1-00	0015-203-1-00	0015-203-4-00	0022-203-4-00	0040-203-4-00
	Part number		08296936	08296944	08296952	08296960	08296979	08296987
IP55 / NEMA 12 housing[1)]	Type	MC LTE B...	0004-203-1-10	0008-203-1-10	0015-203-1-10	0015-203-4-10	0022-203-4-10	0040-203-4-10
	Part number		08297835	08297843	08297851	08297878	08297886	08297894
IP55 / NEMA 12 with switch[1)]	Type	MC LTE B...	0004-203-1-20	0008-203-1-20	0015-203-1-20	0015-203-4-20	0022-203-4-20	0040-203-4-20
	Part number		08297371	08297398	08297401	08297428	08297436	08297444
INPUT								
Supply voltage		V_{mains}	3 × AC 200 – 240 V ± 10 %					
Supply frequency		f_{mains}	50 / 60 Hz ± 5 %					
Supply fuse rating		[A]	6	10	16 (15)[2)]		20	32 (35)[2)]
Nominal input current		[A]	3	5.8	9.2		13.7	20.7
OUTPUT								
Recommended motor power		[kW]	0.37	0.75	1.5	1.5	2.2	4.0
		[hp]	0.5	1	2	2	3	5
Output voltage		[V_{motor}]	3 × 20 – 250 V					
Output current		[A]	2.3	4.3	7	7	10.5	18
Motor cable size Cu 75C		[mm^2]	1.5					2.5
		[AWG]	16					12
Max. motor cable length	Shielded	[m]	25			100		
	Unshielded		40			150		
GENERAL								
Size			1			2		3s
Heat loss at nominal output power		[W]	11	22	45		66	120
Min. braking resistor value		[Ω]	–			47		

1) Unit for America, Asia & Africa

2) Recommended value for UL compliance

With Filter

MOVITRAC® LTE-B – EMC filter class A					
IP20 Standard with filter[1]	Type	MC LTE B...	0015-2A3-4-00	0022-2A3-4-00	0040-2A3-4-00
	Part number		08297134	08297142	08297150
IP55 / NEMA 12 housing with filter[1]	Type	MC LTE B...	0015-2A3-4-10	0022-2A3-4-10	0040-2A3-4-10
	Part number		08298025	08298033	08298041
IP55 / NEMA 12 with switch and filter[1]	Type	MC LTE B...	0015-2A3-4-20	0022-2A3-4-20	0040-2A3-4-20
			08297584	08297592	08297606
IP66 / NEMA 4X with switch and filter[1]	Type	MC LTE B...	0015-2A3-4-40	0022-2A3-4-40	0040-2A3-4-40
	Part number		18251110	18251129	18251137
INPUT					
Supply voltage		V_{mains}	3 × AC 200 – 240 V ± 10 %		
Supply frequency		f_{mains}	50 / 60 Hz ± 5 %		
Supply fuse rating		[A]	16 (15)[2]	20	32 (35)[2]
Nominal input current		[A]	9.2	13.7	20.7
OUTPUT					
Recommended motor power		[kW]	1.5	2.2	4.0
		[hp]	2	3	5
Output voltage		$[V_{motor}]$	3 × 20 – 250 V		
Output current		[A]	7	10.5	18
Motor cable size Cu 75C		$[mm^2]$	1.5		2.5
		[AWG]	16		12
Max. motor cable length	Shielded	[m]	100		
	Unshielded		150		
GENERAL					
Size			2		3s
Heat loss at nominal output power		[W]		66	120
Min. braking resistor value		[Ω]	47		

1) Unit for Europe, Australia & New Zealand

2) Recommended value for UL compliance

10.3.4 3-phase system AC 400 V for 3-phase AC 400 V motors

Sizes 1 & 2

Without Filter

MOVITRAC® LTE-B – EMC filter class 0							
IP20 Standard[1)]	Type	MC LTE B...	0008-503-1-00	0015-503-1-00	0015-503-4-00	0022-503-4-00	0040-503-4-00
	Part number		08296995	08297002	08297010	08297029	08297037
IP55 / NEMA 12 housing[1)]	Type	MC LTE B...	0008-503-1-10	0015-503-1-10	0015-503-4-10	0022-503-4-10	0040-503-4-10
	Part number		08297908	08297916	08297924	08297932	08297940
IP55 / NEMA 12 with switch[1)]	Type	MC LTE B...	0008-503-1-20	0015-503-1-20	0015-503-4-20	0022-503-4-20	0040-503-4-20
	Part number		08297452	08297460	08297479	08297487	08297495
INPUT							
Supply voltage		V_{mains}	3 × AC 380 – 480 V ± 10 %				
Supply frequency		f_{mains}	50 / 60 Hz ± 5 %				
Supply fuse rating		[A]	5	10			16 (15)[2)]
Nominal input current		[A]	2.9	5.4		7.6	12.4
OUTPUT							
Recommended motor power		[kW]	0.75	1.5	1.5	2.2	4
		[hp]	1	2	2	3	5
Output voltage		[V_{motor}]	3 × 20 – 480 V				
Output current		[A]	2.2	4.1	4.1	5.8	9.5
Motor cable size Cu 75C		[mm^2]	1.5				
		[AWG]	16				
Max. motor cable length	Shielded	[m]	25		50		
	Unshielded		40		75		
GENERAL							
Size			1		2		
Heat loss at nominal output power		[W]	22	45		66	120
Min. braking resistor value		[Ω]	–		100		

1) Unit for America, Asia & Africa

2) Recommended value for UL compliance

With Filter

MOVITRAC® LTE-B – EMC filter class A							
IP20 Standard with filter[1]	Type	MC LTE B...	0008-5A3-1-00	0015-5A3-1-00	0015-5A3-4-00	0022-5A3-4-00	0040-5A3-4-00
	Part number		08297169	08297177	08297185	08297193	08297207
IP55 / NEMA 12 housing with filter[1]	Type	MC LTE B...	0008-5A3-1-10	0015-5A3-1-10	0015-5A3-4-10	0022-5A3-4-10	0040-5A3-4-10
	Part number		08298068	08298076	08298084	08298092	08298106
IP55 / NEMA 12 with switch and filter[1]	Type	MC LTE B...	0008-5A3-1-20	0015-5A3-1-20	0015-5A3-4-20	0022-5A3-4-20	0040-5A3-4-20
	Part number		08297614	08297622	08297630	08297649	08297657
IP66 / NEMA 4X with switch and filter[1]	Type	MC LTE B...	0008-5A3-1-40	0015-5A3-1-40	0015-5A3-4-40	0022-5A3-4-40	0040-5A3-4-40
	Part number		18251145	18251153	18251161	18251188	18251196
INPUT							
Supply voltage		V_{mains}	3 × AC 380 – 480 V ± 10 %				
Supply frequency		f_{mains}	50 / 60 Hz ± 5 %				
Supply fuse rating		[A]	5	10			16 (15)[2]
Nominal input current		[A]	2.9	5.4		7.6	12.4
OUTPUT							
Recommended motor power		[kW]	0.75	1.5	1.5	2.2	4
		[hp]	1	2	2	3	5
Output voltage		[V_{motor}]	3 × 20 – 480 V				
Output current		[A]	2.2	4.1	4.1	5.8	9.5
Motor cable size Cu 75C		[mm^2]	1.5				
		[AWG]	16				
Max. motor cable length	Shielded	[m]	25		50		
	Unshielded		40		75		
GENERAL							
Size			1		2		
Heat loss at nominal output power		[W]	22	45		66	120
Min. braking resistor value		[Ω]	–		100		

1) Unit for Europe, Australia & New Zealand

2) Recommended value for UL compliance

Size 3

Without Filter

MOVITRAC® LTE-B – EMC filter class 0					
IP20 Standard[1]	Type	MC LTE B...	0055-503-4-00	0075-503-4-00	0110-503-4-00
	Part number		08297045	08297053	08299218
IP55 / NEMA 12 housing[1]	Type	MC LTE B...	0055-503-4-10	0075-503-4-10	–
	Part number		08297959	08297967	–
IP55 / NEMA 12 with switch[1]	Type	MC LTE B...	0055-503-4-20	0075-503-4-20	–
	Part number		08297509	08297517	–
INPUT					
Supply voltage		V_{mains}	3 × AC 380 – 480 V ± 10 %		
Supply frequency		f_{mains}	50 / 60 Hz ± 5 %		
Supply fuse rating		[A]	20	25	32 (35)[2]
Nominal input current		[A]	17.6	22.1	28.2
OUTPUT					
Recommended motor power		[kW]	5.5	7.5	11
		[hp]	7.5	10	15
Output voltage		[V_{motor}]	3 × 20 – 480 V		
Output current		[A]	14	18	24
Motor cable size Cu 75C		[mm^2]	2.5		4
		[AWG]	12		10
Max. motor cable length	Shielded	[m]	100		
	Unshielded		150		
GENERAL					
Size			3s		
Heat loss at nominal output power		[W]	165	225	330
Min. braking resistor value		[Ω]	22		

1) Unit for America, Asia & Africa

2) Recommended value for UL compliance

With Filter

MOVITRAC® LTE-B – EMC filter class A					
IP20 Standard with filter[1]	Type	MC LTE B...	0055-5A3-4-00	0075-5A3-4-00	0110-5A3-4-00
	Part number		08297215	08297223	08299196
IP55 / NEMA 12 housing with filter[1]	Type	MC LTE B...	0055-5A3-4-10	0075-5A3-4-10	–
	Part number		08298114	08298122	–
IP55 / NEMA 12 with switch and filter[1]	Type	MC LTE B...	0055-5A3-4-20	0075-5A3-4-20	–
	Part number		08297665	08297673	–
IP66 / NEMA 4X with switch and filter[1]	Type	MC LTE B...	0055-5A3-4-40	0075-5A3-4-40	–
	Part number		18251218	18251226	–
INPUT					
Supply voltage		V_{mains}	3 × AC 380 – 480 V ± 10 %		
Supply frequency		f_{mains}	50 / 60 Hz ± 5 %		
Supply fuse rating		[A]	20	25	32 (35)[2]
Nominal input current		[A]	17.6	22.1	28.2
OUTPUT					
Recommended motor power		[kW]	5.5	7.5	11
		[hp]	7.5	10	15
Output voltage		[V_{motor}]	3 × 20 – 480 V		
Output current		[A]	14	18	24
Motor cable size Cu 75C		[mm^2]	2.5		4
		[AWG]	12		10
Max. motor cable length	Shielded	[m]	100		
	Unshielded		150		
GENERAL					
Size			3s		
Heat loss at nominal output power		[W]	165	225	330
Min. braking resistor value		[Ω]	22		

1) Unit for Europe, Australia & New Zealand

2) Recommended value for UL compliance

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	Lyon	SEW-USOCOME Parc d'Affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 4 72 15 37 00 Fax +33 4 72 15 37 15
	Nantes	SEW-USOCOME ZAC de la Forêt? 4 rue des Fontenelles F-44140 Le Bignon	Tel. +33 2 40 78 42 00 Fax +33 2 40 78 42 20
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Belgium			
Assembly **Sales** **Service**	**Brussels**	**SEW Caron-Vector** Avenue Eiffel 5 BE-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.sew-eurodrive.be info@sew-eurodrive.be
Service Competence Center	**Industrial Gears**	**SEW Caron-Vector** Rue de Parc Industriel, 31 BE-6900 Marche-en-Famenne	Tel. +32 84 219-878 Fax +32 84 219-879 http://www.sew-eurodrive.be service-wallonie@sew-eurodrive.be
	Antwerp	**SEW Caron-Vector** Glasstraat, 19 BE-2170 Merksem	Tel. +32 3 64 19 333 Fax +32 3 64 19 336 http://www.sew-eurodrive.be service-antwerpen@sew-eurodrive.be

Brazil			
Production **Sales** **Service**	**Sao Paulo**	SEW-EURODRIVE Brasil Ltda. Avenida Amâncio Gaiolli, 152 - Rodovia Presidente Dutra Km 208 Guarulhos - 07251-250 - SP SAT - SEW ATENDE - 0800 7700496	Tel. +55 11 2489-9133 Fax +55 11 2480-3328 http://www.sew-eurodrive.com.br sew@sew.com.br

Bulgaria			
Sales	**Sofia**	BEVER-DRIVE GmbH Bogdanovetz Str.1 BG-1606 Sofia	Tel. +359 2 9151160 Fax +359 2 9151166 bever@mail.bg

Cameroon			
Sales	**Douala**	Electro-Services Rue Drouot Akwa B.P. 2024 Douala	Tel. +237 33 431137 Fax +237 33 431137 electrojemba@yahoo.fr

Canada			
Assembly **Sales** **Service**	**Toronto**	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, ON L6T 3W1	Tel. +1 905 791-1553 Fax +1 905 791-2999 http://www.sew-eurodrive.ca l.watson@sew-eurodrive.ca
	Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. Tilbury Industrial Park 7188 Honeyman Street Delta, BC V4G 1G1	Tel. +1 604 946-5535 Fax +1 604 946-2513 b.wake@sew- eurodrive.ca
	Montreal	SEW-EURODRIVE CO. OF CANADA LTD. 2555 Rue Leger Lasalle, PQ H8N 2V9	Tel. +1 514 367-1124 Fax +1 514 367-3677 a.peluso@sew- eurodrive.ca
	Additional addresses for service in Canada provided on request!		

Chile			
Assembly **Sales** **Service**	**Santiago de Chile**	SEW-EURODRIVE CHILE LTDA. Las Encinas 1295 Parque Industrial Valle Grande LAMPA RCH-Santiago de Chile P.O. Box Casilla 23 Correo Quilicura - Santiago - Chile	Tel. +56 2 75770-00 Fax +56 2 75770-01 http://www.sew-eurodrive.cl ventas@sew-eurodrive.cl

China			
Production **Assembly** **Sales** **Service**	**Tianjin**	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 46, 7th Avenue, TEDA Tianjin 300457	Tel. +86 22 25322612 Fax +86 22 25322611 info@sew-eurodrive.cn http://www.sew-eurodrive.cn
Assembly **Sales** **Service**	**Suzhou**	SEW-EURODRIVE (Suzhou) Co., Ltd. 333, Suhong Middle Road Suzhou Industrial Park Jiangsu Province, 215021	Tel. +86 512 62581781 Fax +86 512 62581783 suzhou@sew-eurodrive.cn
	Guangzhou	SEW-EURODRIVE (Guangzhou) Co., Ltd. No. 9, JunDa Road East Section of GETDD Guangzhou 510530	Tel. +86 20 82267890 Fax +86 20 82267891 guangzhou@sew-eurodrive.cn
	Shenyang	SEW-EURODRIVE (Shenyang) Co., Ltd. 10A-2, 6th Road Shenyang Economic Technological Development Area Shenyang, 110141	Tel. +86 24 25382538 Fax +86 24 25382580 shenyang@sew-eurodrive.cn
	Wuhan	SEW-EURODRIVE (Wuhan) Co., Ltd. 10A-2, 6th Road No. 59, the 4th Quanli Road, WEDA 430056 Wuhan	Tel. +86 27 84478398 Fax +86 27 84478388
	Xi'An	SEW-EURODRIVE (Xi'An) Co., Ltd. No. 12 Jinye 2nd Road Xi'An High-Technology Industrial Development Zone Xi'An 710065	Tel. +86 29 88241718 Fax +86 29 68686296 logistic-xa@sew-eurodrive.cn
	Additional addresses for service in China provided on request!		

Colombia			
Assembly **Sales** **Service**	**Bogotá**	SEW-EURODRIVE COLOMBIA LTDA. Calle 22 No. 132-60 Bodega 6, Manzana B Santafé de Bogotá	Tel. +57 1 54750-50 Fax +57 1 54750-44 http://www.sew-eurodrive.com.co sewcol@sew-eurodrive.com.co

Croatia			
Sales **Service**	**Zagreb**	KOMPEKS d. o. o. Zeleni dol 10 HR 10 000 Zagreb	Tel. +385 1 4613-158 Fax +385 1 4613-158 kompeks@inet.hr

Czech Republic			
Sales	**Prague**	SEW-EURODRIVE CZ S.R.O. Business Centrum Praha Lužná 591 CZ-16000 Praha 6 - Vokovice	Tel. +420 255 709 601 Fax +420 220 121 237 http://www.sew-eurodrive.cz sew@sew-eurodrive.cz

Denmark			
Assembly **Sales** **Service**	**Copenhagen**	SEW-EURODRIVEA/S Geminivej 28-30 DK-2670 Greve	Tel. +45 43 9585-00 Fax +45 43 9585-09 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk

Egypt			
Sales **Service**	**Cairo**	Copam Egypt for Engineering & Agencies 33 El Hegaz ST, Heliopolis, Cairo	Tel. +20 2 22566-299 + 1 23143088 Fax +20 2 22594-757 http://www.copam-egypt.com/ copam@datum.com.eg

Estonia			
Sales	**Tallin**	ALAS-KUUL AS Reti tee 4 EE-75301 Peetri küla, Rae vald, Harjumaa	Tel. +372 6593230 Fax +372 6593231 veiko.soots@alas-kuul.ee

Finland			
Assembly **Sales** **Service**	**Lahti**	SEW-EURODRIVE OY Vesimäentie 4 FIN-15860 Hollola 2	Tel. +358 201 589-300 Fax +358 3 780-6211 sew@sew.fi http://www.sew-eurodrive.fi
Production **Assembly**	**Karkkila**	SEW Industrial Gears Oy Valurinkatu 6, PL 8 FI-03600 Karkkila, 03601 Karkkila	Tel. +358 201 589-300 Fax +358 201 589-310 sew@sew.fi http://www.sew-eurodrive.fi

Gabon			
Sales	**Libreville**	ESG Electro Services Gabun Feu Rouge Lalala 1889 Libreville Gabun	Tel. +241 741059 Fax +241 741059 esg_services@yahoo.fr

Great Britain			
Assembly **Sales** **Service**	**Normanton**	SEW-EURODRIVE Ltd. Beckbridge Industrial Estate P.O. Box No.1 GB-Normanton, West- Yorkshire WF6 1QR	Tel. +44 1924 893-855 Fax +44 1924 893-702 http://www.sew-eurodrive.co.uk info@sew-eurodrive.co.uk

Greece			
Sales **Service**	**Athens**	Christ. Boznos & Son S.A. 12, K. Mavromichali Street P.O. Box 80136 GR-18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr

Hong Kong			
Assembly **Sales** **Service**	**Hong Kong**	SEW-EURODRIVE LTD. Unit No. 801-806, 8th Floor Hong Leong Industrial Complex No. 4, Wang Kwong Road Kowloon, Hong Kong	Tel. +852 36902200 Fax +852 36902211 contact@sew-eurodrive.hk

Hungary			
Sales **Service**	**Budapest**	SEW-EURODRIVE Kft. H-1037 Budapest Kunigunda u. 18	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 office@sew-eurodrive.hu

India			
Registered Office **Assembly** **Sales** **Service**	**Vadodara**	SEW-EURODRIVE India Private Limited Plot No. 4, GIDC POR Ramangamdi • Vadodara - 391 243 Gujarat	Tel. +91 265 3045200, +91 265 2831086 Fax +91 265 3045300, +91 265 2831087 http://www.seweurodriveindia.com sales@seweurodriveindia.com subodh.ladwa@seweurodriveindia.com
Assembly **Sales** **Service**	**Chennai**	SEW-EURODRIVE India Private Limited Plot No. K3/1, Sipcot Industrial Park Phase II Mambakkam Village Sriperumbudur - 602105 Kancheepuram Dist, Tamil Nadu	Tel. +91 44 37188888 Fax +91 44 37188811 c.v.shivkumar@seweurodriveindia.com

Ireland			
Sales **Service**	**Dublin**	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458 info@alperton.ie http://www.alperton.ie

Israel			
Sales	**Tel-Aviv**	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il

Italy			
Assembly **Sales** **Service**	**Milan**	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Bernini,14 I-20020 Solaro (Milano)	Tel. +39 02 96 9801 Fax +39 02 96 799781 http://www.sew-eurodrive.it sewit@sew-eurodrive.it

Ivory Coast			
Sales	**Abidjan**	SICA Société industrielle & commerciale pour l'Afrique 165, Boulevard de Marseille 26 BP 1115 Abidjan 26	Tel. +225 21 25 79 44 Fax +225 21 25 88 28 sicamot@aviso.ci

Japan			
Assembly **Sales** **Service**	**Iwata**	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373814 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp

Kazakhstan			
Sales	**Almaty**	ТОО "СЕВ-ЕВРОДРАЙВ" 050061, Республика Казахстан г.Алматы, пр.Райымбека, 348	Тел. +7 (727) 334 1880 Факс +7 (727) 334 1881 http://www.sew-eurodrive.kz sew@sew-eurodrive.kz

Latvia			
Sales	**Riga**	SIA Alas-Kuul Katlakalna 11C LV-1073 Riga	Tel. +371 7139253 Fax +371 7139386 http://www.alas-kuul.com info@alas-kuul.com

Lebanon			
Sales	**Beirut**	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 510 532 Fax +961 1 494 971 ssacar@info.com.lb
	Beirut	Middle East Drives S.A.L. (offshore) Sin El Fil. B. P. 55-378 Beirut	Tel. +961 1 494 786 Fax +961 1 494 971 philipppe.acar@medrives.com http://www.medrives.com

Lithuania			
Sales	**Alytus**	UAB Irseva Naujoji 19 LT-62175 Alytus	Tel. +370 315 79204 Fax +370 315 56175 info@irseva.lt http://www.sew-eurodrive.lt

Luxembourg			
Assembly **Sales** **Service**	**Brüssel**	CARON-VECTOR S.A. Avenue Eiffel 5 B-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.sew-eurodrive.lu info@caron-vector.be

Malaysia			
Assembly **Sales** **Service**	**Johore**	SEW-EURODRIVE SDN BHD No. 95, Jalan Seroja 39, Taman Johor Jaya 81000 Johor Bahru, Johor West Malaysia	Tel. +60 7 3549409 Fax +60 7 3541404 sales@sew-eurodrive.com.my

Mexico			
Assembly **Sales** **Service**	**Quéretaro**	SEW-EURODRIVE MEXICO SA DE CV SEM-981118-M93 Tequisquiapan No. 102 Parque Industrial Quéretaro C.P. 76220 Quéretaro, México	Tel. +52 442 1030-300 Fax +52 442 1030-301 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx

Morocco			
Sales	**Casablanca**	Afit 5, rue Emir Abdelkader MA 20300 Casablanca	Tel. +212 522633747 Fax +212 522621588 fatima.haquiq@premium.net http://www.groupe-premium.com

Netherlands			
Assembly **Sales** **Service**	**Rotterdam**	VECTOR Aandrijftechniek B.V. Industrieweg 175 NL-3044 AS Rotterdam Postbus 10085 NL-3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 http://www.vector.nu info@vector.nu
	Revelhorst	VECTOR Aandrijftechniek B.V. Gelderhorst 10 NL-7207 BH Zutphen Industrieterrein de Revelhorst	Tel. +31 575 57 44 94 Fax +31 575 57 24 43 oost@vector.nu
	Grubbenvorst	VECTOR Aandrijftechniek B.V. Mercuriusweg 8A NL-5971 LX Grubbenvorst	Tel. +31 77 36 61 873 Fax +31 77 36 62 109 zuid@vector.nu
	Purmerend	VECTOR Aandrijftechniek B.V. Weberstraat 74 NL-1446 VV Purmerend Industrieterrein "De Baanstee"	Tel. +31 299 66 63 38 Fax +31 299 47 60 55 noordwest@vector.nu

New Zealand			
Assembly **Sales** **Service**	**Auckland**	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 10 Settlers Crescent, Ferrymead Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz

Norway			
Assembly **Sales** **Service**	**Moss**	SEW-EURODRIVE A/S Solgaard skog 71 N-1599 Moss	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 http://www.sew-eurodrive.no sew@sew-eurodrive.no

Peru			
Assembly **Sales** **Service**	**Lima**	SEW DEL PERU MOTORES REDUCTORES S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe

Poland			
Assembly **Sales** **Service**	**Lodz**	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 PL-92-518 Łódź	Tel. +48 42 676 53 00 Fax +48 42 676 53 45 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
	24 Hour Service		Tel. +48 602 739 739 (+48 602 SEW SEW) serwis@sew-eurodrive.pl

Portugal			
Assembly **Sales** **Service**	**Coimbra**	SEW-EURODRIVE, LDA. Apartado 15 P-3050-901 Mealhada	Tel. +351 231 20 9670 Fax +351 231 20 3685 http://www.sew-eurodrive.pt infosew@sew-eurodrive.pt

Romania			
Sales **Service**	**Bucharest**	Sialco Trading SRL str. Madrid nr.4 011785 Bucuresti	Tel. +40 21 230-1328 Fax +40 21 230-7170 sialco@sialco.ro

Russia			
Assembly **Sales** **Service**	**St. Petersburg**	ZAO SEW-EURODRIVE P.O. Box 36 195220 St. Petersburg Russia	Tel. +7 812 3332522 +7 812 5357142 Fax +7 812 3332523 http://www.sew-eurodrive.ru sew@sew-eurodrive.ru

Senegal			
Sales	**Dakar**	SENEMECA Mécanique Générale Km 8, Route de Rufisque B.P. 3251, Dakar	Tel. +221 338 494 770 Fax +221 338 494 771 senemeca@sentoo.sn http://www.senemeca.com

Serbia			
Sales	**Beograd**	DIPAR d.o.o. Ustanicka 128a PC Košum, IV floor SCG-11000 Beograd	Tel. +381 11 347 3244 / +381 11 288 0393 Fax +381 11 347 1337 office@dipar.rs

Singapore			
Assembly **Sales** **Service**	**Singapore**	SEW-EURODRIVE PTE. LTD. No 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644	Tel. +65 68621701 Fax +65 68612827 http://www.sew-eurodrive.com.sg sewsingapore@sew-eurodrive.com

Slovakia			
Sales	**Bratislava**	SEW-Eurodrive SK s.r.o. Rybničná 40 SK-831 06 Bratislava	Tel. +421 2 33595 202 Fax +421 2 33595 200 sew@sew-eurodrive.sk http://www.sew-eurodrive.sk
	Žilina	SEW-Eurodrive SK s.r.o. Industry Park - PChZ ulica M.R.Štefánika 71 SK-010 01 Žilina	Tel. +421 41 700 2513 Fax +421 41 700 2514 sew@sew-eurodrive.sk
	Banská Bystrica	SEW-Eurodrive SK s.r.o. Rudlovská cesta 85 SK-974 11 Banská Bystrica	Tel. +421 48 414 6564 Fax +421 48 414 6566 sew@sew-eurodrive.sk
	Košice	SEW-Eurodrive SK s.r.o. Slovenská ulica 26 SK-040 01 Košice	Tel. +421 55 671 2245 Fax +421 55 671 2254 sew@sew-eurodrive.sk

Slovenia			
Sales **Service**	**Celje**	Pakman - Pogonska Tehnika d.o.o. UI. XIV. divizije 14 SLO - 3000 Celje	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net

South Africa			
Assembly **Sales** **Service**	**Johannesburg**	SEW-EURODRIVE (PROPRIETARY) LIMITED Eurodrive House Cnr. Adcock Ingram and Aerodrome Roads Aeroton Ext. 2 Johannesburg 2013 P.O.Box 90004 Bertsham 2013	Tel. +27 11 248-7000 Fax +27 11 494-3104 http://www.sew.co.za info@sew.co.za

South Africa			
	Cape Town	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442 Cape Town	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 cfoster@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 2 Monaco Place Pinetown Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 700-3451 Fax +27 31 700-3847 cdejager@sew.co.za

South Korea			
Assembly **Sales** **Service**	**Ansan-City**	SEW-EURODRIVE KOREA CO., LTD. B 601-4, Banweol Industrial Estate 1048-4, Shingil-Dong Ansan 425-120	Tel. +82 31 492-8051 Fax +82 31 492-8056 http://www.sew-korea.co.kr master@sew-korea.co.kr
	Busan	SEW-EURODRIVE KOREA Co., Ltd. No. 1720 - 11, Songjeong - dong Gangseo-ku Busan 618-270	Tel. +82 51 832-0204 Fax +82 51 832-0230 master@sew-korea.co.kr

Spain			
Assembly **Sales** **Service**	**Bilbao**	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 E-48170 Zamudio (Vizcaya)	Tel. +34 94 43184-70 Fax +34 94 43184-71 http://www.sew-eurodrive.es sew.spain@sew-eurodrive.es

Sweden			
Assembly **Sales** **Service**	**Jönköping**	SEW-EURODRIVE AB Gnejsvägen 6-8 S-55303 Jönköping Box 3100 S-55003 Jönköping	Tel. +46 36 3442 00 Fax +46 36 3442 80 http://www.sew-eurodrive.se jonkoping@sew.se

Switzerland			
Assembly **Sales** **Service**	**Basel**	Alfred Imhof A.G. Jurastrasse 10 CH-4142 Münchenstein bei Basel	Tel. +41 61 417 1717 Fax +41 61 417 1700 http://www.imhof-sew.ch info@imhof-sew.ch

Thailand			
Assembly **Sales** **Service**	**Chonburi**	SEW-EURODRIVE (Thailand) Ltd. 700/456, Moo.7, Donhuaroh Muang Chonburi 20000	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.com

Tunisia			
Sales	**Tunis**	T. M.S. Technic Marketing Service Zone Industrielle Mghira 2 Lot No. 39 2082 Fouchana	Tel. +216 79 40 88 77 Fax +216 79 40 88 66 tms@tms.com.tn

Turkey			
Assembly **Sales** **Service**	**Istanbul**	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. Bagdat Cad. Koruma Cikmazi No. 3 TR-34846 Maltepe ISTANBUL	Tel. +90 216 4419163 / 4419164 Fax +90 216 3055867 http://www.sew-eurodrive.com.tr sew@sew-eurodrive.com.tr

Ukraine			
Sales **Service**	**Dnepropetrovsk**	SEW-EURODRIVE Str. Rabochaja 23-B, Office 409 49008 Dnepropetrovsk	Tel. +380 56 370 3211 Fax +380 56 372 2078 http://www.sew-eurodrive.ua sew@sew-eurodrive.ua

USA			
Production **Assembly** **Sales** **Service** **Corporate Offices**	**Southeast Region**	SEW-EURODRIVE INC. 1295 Old Spartanburg Highway P.O. Box 518 Lyman, S.C. 29365	Tel. +1 864 439-7537 Fax Sales +1 864 439-7830 Fax Manufacturing +1 864 439-9948 Fax Assembly +1 864 439-0566 Fax Confidential/HR +1 864 949-5557 http://www.seweurodrive.com cslyman@seweurodrive.com
Assembly **Sales** **Service**	**Northeast Region**	SEW-EURODRIVE INC. Pureland Ind. Complex 2107 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014	Tel. +1 856 467-2277 Fax +1 856 845-3179 csbridgeport@seweurodrive.com
	Midwest Region	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. +1 937 335-0036 Fax +1 937 440-3799 cstroy@seweurodrive.com
	Southwest Region	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
	Western Region	SEW-EURODRIVE INC. 30599 San Antonio St. Hayward, CA 94544	Tel. +1 510 487-3560 Fax +1 510 487-6433 cshayward@seweurodrive.com
	Additional addresses for service in the USA provided on request!		

Venezuela			
Assembly **Sales** **Service**	**Valencia**	SEW-EURODRIVE Venezuela S.A. Av. Norte Sur No. 3, Galpon 84-319 Zona Industrial Municipal Norte Valencia, Estado Carabobo	Tel. +58 241 832-9804 Fax +58 241 838-6275 http://www.sew-eurodrive.com.ve ventas@sew-eurodrive.com.ve sewfinanzas@cantv.net

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